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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

**FORM S-1**

REGISTRATION STATEMENT UNDER  
THE SECURITIES ACT OF 1933

**BIO-PATH HOLDINGS, INC.**

(Exact name of registrant as specified in its charter)

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

**2834**  
(Primary Standard Industrial  
Classification Code Number)

**87-0652870**  
(I.R.S. Employer  
Identification Number)

**4710 Bellaire Boulevard, Suite 210  
Bellaire, Texas 77401  
(832) 742-1357**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**Peter H. Nielsen  
President and Chief Executive Officer  
4710 Bellaire Boulevard, Suite 210  
Bellaire, Texas 77401  
(832) 742-1357**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

*Copies To:*

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**Approximate date of commencement of proposed sale to the public: As soon as practicable after this registration statement becomes effective.**

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box:

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth 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"/>	Smaller reporting company	<input checked="" type="checkbox"/>
Emerging growth company	<input type="checkbox"/>		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

**The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with section 8(a) of the Section Act of 1933, as amended, or until this registration statement shall become effective on such date as the Securities and Exchange Commission acting pursuant to said section 8(a), may determine.**

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The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale of these securities is not permitted.

**SUBJECT TO COMPLETION, DATED JANUARY 17, 2025**

**PRELIMINARY PROSPECTUS**



**UP TO      SHARES OF COMMON STOCK  
PRE-FUNDED WARRANTS TO PURCHASE UP TO      SHARES OF COMMON STOCK  
UP TO      SHARES OF COMMON STOCK UNDERLYING THE PRE-FUNDED WARRANTS  
SERIES A COMMON WARRANTS TO PURCHASE UP TO      SHARES OF COMMON STOCK  
UP TO      SHARES OF COMMON STOCK UNDERLYING THE SERIES A COMMON WARRANTS  
SERIES B COMMON WARRANTS TO PURCHASE UP TO      SHARES OF COMMON STOCK  
UP TO      SHARES OF COMMON STOCK UNDERLYING THE SERIES B COMMON WARRANTS  
PLACEMENT AGENT WARRANTS TO PURCHASE UP TO      SHARES OF COMMON STOCK UP  
TO      SHARES OF COMMON STOCK UNDERLYING THE PLACEMENT AGENT WARRANTS**

This is a best efforts public offering of up to      shares of our common stock, par value \$0.001 per share, together with (i) Series A warrants to purchase up to an aggregate of      shares of our common stock (the “Series A Warrants”) and (ii) Series B Warrants to purchase up to an aggregate of      shares of our common stock (the “Series B Warrants”) and together with the Series A Warrants, the “Common Warrants”) at an assumed combined public offering price of \$      per share and one Series A Warrant and one Series B Warrant (the last reported sale price per share of our common stock on the Nasdaq Capital Market on      , 2025). We are also offering pre-funded warrants to purchase up to      shares of our common stock (the “Pre-Funded Warrants”) and the shares of common stock issuable upon exercise of the Pre-Funded Warrants, in lieu of shares of common stock, to those investors whose purchase of shares of our common stock in this offering would result in the investor, together with its affiliates and certain related parties, beneficially owning more than 4.99% (or, at the election of the investor, 9.99%) of our outstanding common stock immediately following the consummation of this offering. Each Pre-Funded Warrant will be exercisable for one share of our common stock. Each Pre-Funded Warrant is being sold together with one Series A Warrant and one Series B Warrant. Each Pre-Funded Warrant and the accompanying Common Warrants will be offered at an offering price equal to the combined public offering price at which a share of common stock and accompanying Common Warrant is being offered, minus \$0.001. The exercise price of the Pre-Funded Warrants will be \$0.001 per share, and the Pre-Funded Warrants will be immediately exercisable and may be exercised at any time until exercised in full. For each Pre-Funded Warrant we sell, the number of shares of common stock we are offering will be decreased on a one-for-one basis. The number of Common Warrants sold in this offering will not change as a result of a change in the mix of the shares of our common stock and Pre-Funded Warrants sold. The exercise price of the Common Warrants will be \$      per share. The Common Warrants will be exercisable immediately on the effective date of stockholder approval of the issuance of the shares upon exercise of the Common Warrants (the “Warrant Stockholder Approval Date” and such approval, the “Warrant Stockholder Approval”); provided, however, that, if and only if the Pricing Conditions (as defined below) are met, the Common Warrants will be exercisable upon issuance. As used herein “Pricing Conditions” means that the combined offering price per share and accompanying Common Warrants is such that the Warrant Stockholder Approval is not required under the rules of the Nasdaq Stock Market LLC because either (i) the offering is an at-the-market offering under the rules of the Nasdaq Stock Market LLC and such price equals or exceeds the sum of (a) the applicable “Minimum Price” per share under Nasdaq Rule 5635(d) plus (b) \$0.125 per whole share of common stock underlying the Common Warrants or (ii) the offering is a discounted offering where the pricing and discount (including attributing a value of \$0.125 per whole share underlying the Common Warrants) meet the pricing requirements under the Nasdaq Stock Market LLC’s rules. The Series A Warrants will expire      five years from the Warrant Stockholder Approval Date, provided that if the Pricing Conditions are met, the Series A Warrants will expire five years from the date of issuance. The Series B Warrants will expire twenty-four months from the Warrant Stockholder Approval Date, provided that if the Pricing Conditions are met, the Series B Warrants will expire twenty-four months from the date of issuance. This offering also relates to the shares of common stock issuable upon the exercise of any Pre-Funded Warrants and any Common Warrants. The shares of common stock and Pre-Funded Warrants, as the case may be, and the accompanying Common Warrants, can only be purchased together in this offering but will be issued separately and will be immediately separable upon issuance.

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Our common stock is currently listed on the Nasdaq Capital Market under the symbol “BPTH.” On [REDACTED], 2025, the last reported sales price per share of our common stock on the Nasdaq Capital Market was \$ [REDACTED]. All share, Pre-Funded Warrant and Common Warrant numbers are based on an assumed combined public offering price of \$ [REDACTED] per share and accompanying Common Warrants (or \$ [REDACTED] per Pre-Funded Warrant and accompanying Common Warrants). The actual public offering price per share of common stock and accompanying Common Warrants and per Pre-Funded Warrant and accompanying Common Warrants, as the case may be, will be determined between us, the Placement Agent (as defined below) and the investors at the time of pricing, may be at a discount to the current market price, and may be based upon a number of factors, including our history and our prospects, the industry in which we operate, our past and present operating results, the previous experience of our executive officers and the general condition of the securities markets at the time of this offering. Therefore, the assumed combined public offering price used throughout this prospectus may not be indicative of the final offering price. There is no established public trading market for the Pre-Funded Warrants or the Common Warrants, and we do not expect a market to develop. In addition, we do not intend to list the Pre-Funded Warrants or the Common Warrants on the Nasdaq Capital Market, any other national securities exchange or any other nationally recognized trading system.

This offering will terminate on [REDACTED], 2025, unless we decide to terminate the offering (which we may do at any time in our discretion) prior to that date. We will have one closing for all securities purchased in this offering and the combined public offering price per share of common stock (or Pre-Funded Warrant) and accompanying Common Warrants will be fixed for the duration of this offering.

We have engaged [REDACTED] as our exclusive placement agent (the “Placement Agent”) to use its reasonable best efforts to solicit offers to purchase our securities in this offering. The Placement Agent has no obligation to purchase any of the securities from us or to arrange for the purchase or sale of any specific number or dollar amount of the securities. Because there is no minimum offering amount required as a condition to closing in this offering the actual public offering amount, Placement Agent’s fee, and proceeds to us, if any, are not presently determinable and may be substantially less than the total maximum offering amounts set forth above and throughout this prospectus. We have agreed to pay the Placement Agent the Placement Agent fees set forth in the table above. See “Plan of Distribution” in this prospectus for more information. Because there is no minimum offering amount required as a condition to closing this offering, we may sell fewer than all of the securities offered hereby, which may significantly reduce the amount of proceeds received by us, and investors in this offering will not receive a refund in the event that we do not sell an amount of securities sufficient to pursue our business goals described in this prospectus. We will bear all costs associated with the offering.

**Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described in the section titled “Risk Factors” on page 11 of this prospectus.**

	Per Share and Accompanying Common Warrants	Per Pre- Funded Warrant and Accompanying Common Warrants	Total
Public offering price	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Placement Agent fees <sup>(1)</sup>	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Proceeds, before expenses, to us <sup>(2)</sup>	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]

- (1) Represents a cash fee equal to [REDACTED] % of the aggregate purchase price paid by investors in this offering. In addition, we have agreed to reimburse the Placement Agent for certain expenses. In addition, we have agreed to issue the placement agent or its designees, as compensation in connection with this offering, warrants (the “Placement Agent Warrants”), to purchase a number of shares of common stock equal to [REDACTED] % of the shares of common stock sold in this offering (including the shares of common stock issuable upon the exercise of the Pre-Funded Warrants), at an exercise price of \$ [REDACTED] per share, which represents [REDACTED] % of the combined public offering price per share of common stock and accompanying Common Warrants. See “Plan of Distribution” on page 99 of this prospectus for more information.

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- (2) Because there is no minimum number of securities or amount of proceeds required as a condition to closing in this offering, the actual public offering amount, placement agent fees, and proceeds to us, if any, are not presently determinable and may be substantially less than the total maximum offering amounts set forth above. The amount of the offering proceeds to us presented in this table does not give effect to the exercise, if any, of the Pre-Funded Warrants or the Common Warrants.

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

Delivery of the shares of common stock, Pre-Funded Warrants and Common Warrants offered hereby is expected to take place on , 2025, subject to satisfaction of certain conditions.

The date of this prospectus is , 2025.

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## ABOUT THIS PROSPECTUS

The registration statement we filed with the Securities and Exchange Commission (the “SEC”) includes exhibits that provide more detail of the matters discussed in this prospectus. You should read this prospectus and the related exhibits filed with the SEC before making your investment decision. You should rely only on the information provided in this prospectus. In addition, this prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information.

This prospectus includes important information about us, the securities being offered and other information you should know before investing in our securities. You should not assume that the information contained in this prospectus is accurate on any date subsequent to the date set forth on the front cover of this prospectus, even though this prospectus is delivered or securities are sold or otherwise disposed of on a later date. It is important for you to read and consider all information contained in this prospectus in making your investment decision. All of the summaries in this prospectus are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under the heading “Where You Can Find More Information.”

We have not, and the Placement Agent has not, authorized anyone to provide any information or to make any representations other than those contained in this prospectus or in any free writing prospectuses prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. The information contained in this prospectus or in any applicable free writing prospectus is current only as of its date, regardless of its time of delivery or any sale of our securities. Our business, financial condition, results of operations and prospects may have changed since that date.

For investors outside the United States: We have not, and the Placement Agent has not, done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the securities and the distribution of this prospectus outside the United States.

Unless otherwise indicated, information contained in this prospectus concerning our industry, including our general expectations and market opportunity, is based on information from our own management estimates and research, as well as from industry and general publications and research, surveys and studies conducted by third parties. Management estimates are derived from publicly available information, our knowledge of our industry and assumptions based on such information and knowledge, which we believe to be reasonable. In addition, assumptions and estimates of our and our industry’s future performance are necessarily uncertain due to a variety of factors, including those described in “Risk Factors” beginning on page 11 of this prospectus. These and other factors could cause our future performance to differ materially from our assumptions and estimates.

This prospectus is an offer to sell only the securities offered hereby, and only under circumstances and in jurisdictions where it is lawful to do so. We are not, and the Placement Agent is not, making an offer to sell these securities in any state or jurisdiction where the offer or sale is not permitted.

## PROSPECTUS SUMMARY

*This summary highlights selected information contained elsewhere in this prospectus. This summary does not contain all of the information that you should consider before making an investment decision. This prospectus includes information about this offering, our business and our financial and operating data. You should carefully read the entire prospectus, including under the sections titled “Risk Factors” included herein, before making an investment decision. Unless the context requires otherwise, references in this prospectus to “we,” “our,” “us,” “the Company” and “Bio-Path” refer to Bio-Path Holdings, Inc. and its wholly-owned subsidiary. Bio-Path Holdings, Inc.’s wholly-owned subsidiary, Bio-Path, Inc., is sometimes referred to herein as “Bio-Path Subsidiary.”*

### **Our Company**

We are a clinical and preclinical stage oncology and obesity-focused RNAi nanoparticle drug development company utilizing a novel technology that achieves systemic delivery for target-specific protein inhibition for any gene product that is over-expressed in disease. Our drug delivery and antisense technology, called DNAbilize<sup>®</sup>, is a platform that uses P-ethoxy, which is a deoxyribonucleic acid (DNA) backbone modification that is intended to protect the DNA from destruction by the body’s enzymes when circulating in vivo, incorporated inside of a lipid bilayer having neutral charge. We believe this combination allows for high efficiency loading of antisense DNA into non-toxic, cell-membrane-like structures for delivery of the antisense drug substance into cells. In vivo, the DNAbilize<sup>®</sup> delivered antisense drug substances are systemically distributed throughout the body to allow for reduction or elimination of target proteins in blood diseases and solid tumors. Through testing in numerous animal studies and dosing in clinical trials, our DNAbilize<sup>®</sup> drug candidates have demonstrated an excellent safety profile. DNAbilize<sup>®</sup> is a registered trademark of the Company.

Using DNAbilize<sup>®</sup> as a platform for drug development and manufacturing, we currently have four drug candidates in development to treat at least five different cancer disease indications. Our lead drug candidate, prexigebersen (pronounced prex’ i je ber’ sen), which targets growth factor receptor-bound protein 2 (“Grb2”), initially started the efficacy portion of a Phase 2 clinical trial for untreated acute myeloid leukemia (“AML”) patients in combination with low-dose cytarabine (“LDAC”). However, the changing landscape of AML treatment has led to amendment of the Phase 2 clinical study by removing the combination treatment of prexigebersen and LDAC and replacing it with the combination treatment of prexigebersen and decitabine.

The U.S. Food and Drug Administration (“FDA”) granted approval of venetoclax in combination with LDAC, decitabine or azacytidine (the latter two drugs are DNA hypomethylating agents) as frontline therapy for newly diagnosed AML in adults who are 75 years or older, or who have comorbidities precluding intensive induction chemotherapy. We believe this approval of the frontline venetoclax and decitabine combination therapy provides an opportunity for combining prexigebersen with the combination therapy for the treatment of newly diagnosed AML patients. In preclinical efficacy studies, four AML cancer cell lines were treated with three different combinations of decitabine, venetoclax and prexigebersen. Decrease in AML cell viability was the primary measure of efficacy. The triple combination of decitabine, venetoclax and prexigebersen showed significant improvement in efficacy in three of the four AML cell lines. Based on these results, we believe that adding prexigebersen to the treatment combination of decitabine and venetoclax could lead to improved efficacy in AML patients.

Our approved amended Phase 2 clinical trial currently has three cohorts of patients. The first two cohorts will treat patients with the triple combination of prexigebersen, decitabine and venetoclax. The first cohort will include newly diagnosed AML patients, and the second cohort will include relapsed/refractory AML patients. Finally, the third cohort will treat relapsed/refractory AML patients, who are venetoclax-resistant or -intolerant, with the two-drug combination of prexigebersen and decitabine. The full trial design plans have approximately 98 evaluable patients for the first cohort having newly diagnosed AML patients with a preliminary review performed after 19 evaluable patients and a formal interim analysis after 38 evaluable patients. The full trial design plans have approximately 54 evaluable patients for each of the second cohort, having relapsed/refractory AML patients, and the third cohort, having AML patients who are venetoclax-resistant or -intolerant, in each case with a review performed after 19 evaluable patients. The study is anticipated to be conducted at up to ten clinical sites in the U.S., and Gail J. Roboz, MD, is the national coordinating Principal Investigator for the Phase 2 trial. Dr. Roboz is a professor of medicine and director of the Clinical and Translational Leukemia Program at the Weill Medical College of Cornell University (the “Weill Medical College”) and the New York-Presbyterian Hospital in New York City.

The safety run-in of the triple combination of prexigebersen, decitabine and venetoclax for the Phase 2 clinical study was successfully completed. The preliminary data, presented at the 2021 ASH Annual Meeting, showed the treatment was well-tolerated and there were no dose limiting toxicities attributed to prexigebersen.

On June 3, 2024, we announced additional interim data for the first two cohorts of the Phase 2 clinical trial. In Cohort 1, 31 newly diagnosed patients were enrolled; 20 evaluable patients with a median age of 75 years, treated with at least one cycle of prexigebersen, decitabine and venetoclax, had adverse-risk or secondary AML evolved from myelodysplastic syndromes, chronic myelomonocytic leukemia or treatment-related AML. Fifteen patients (75%) achieved complete remission (“CR”), CR with partial recovery of peripheral blood counts (“CRh”), or CR with incomplete hematologic recovery (“CRi”). One patient achieved partial remission (“PR”), three patients achieved stable disease, and one patient had toxicity attributed to decitabine and venetoclax treatment. In Cohort 2, 40 relapsed/refractory patients were enrolled; 23 evaluable patients with a median age of 63 years, treated with at least one cycle of prexigebersen, decitabine and venetoclax, had adverse-risk or secondary AML. Twelve patients (55%) achieved CR/CRi/CRh, one patient achieved PR, eight patients achieved stable disease and two patients had progressive disease or treatment failure. Among the evaluable patients of both cohorts, adverse events were consistent with those expected with decitabine and venetoclax and/or AML, including fatigue (72%), anemia (60%) and neutropenia (49%), while the most frequent severe adverse events were febrile neutropenia (26%) and sepsis (5%). The interim analysis data was selected as an oral presentation in the 2024 American Society of Clinical Oncology (“ASCO”) Annual Meeting and as a poster presentation in the 2024 European Hematology Association (“EHA”) Annual Meeting. Based on this interim data, we expect to continue enrollment of up to 98 and 54 evaluable patients for Cohorts 1 and 2, respectively and plan to pursue FDA expedited programs for Fast Track designation. We are evaluating whether to seek to expand Stage 2 of the Phase 2 clinical trial in Europe. We expect to complete enrollment in cohorts 1 and 2 in 2026.

Our second drug candidate, Liposomal Bcl-2 (“BP1002”), targets the protein Bcl-2, which is responsible for driving cell survival in up to 60% of all cancers. A Phase 1 clinical trial to evaluate the ability of BP1002 to treat refractory/relapsed lymphoma and refractory/relapsed chronic lymphocytic leukemia (“CLL”) patients is being conducted at the Georgia Cancer Center, The University of Texas Southwestern and New York Medical College. A total of six evaluable patients are scheduled to be treated over two dose levels with BP1002 monotherapy in a standard 3+3 design. Enrollment has been successfully completed for both dose cohorts, 20 and 40 mg/m<sup>2</sup>. There were no dose limiting toxicities.

On December 11, 2024, we announced that the Phase 1 clinical trial evaluating BP1002 as a treatment for refractory/relapsed lymphoma and refractory/relapsed chronic lymphocytic leukemia has discontinued enrollment. This decision was based on enrollment challenges in these niche indications, particularly given the crowded development landscape that includes multiple competing trials.

Additionally, preclinical studies suggest that the combination of BP1002 with decitabine is efficacious in venetoclax-resistant cells. An abstract of the preclinical study was presented at the 2021 American Association for Cancer Research (“AACR”) Annual Meeting. A Phase 1/1b clinical trial to investigate the ability of BP1002 to treat refractory/relapsed AML patients, including venetoclax-resistant patients, is being studied. A recent study found that AML patients who had relapsed from frontline venetoclax-based treatment had a very poor prognosis, with a median survival of less than three months. Since venetoclax and BP1002 utilize different mechanisms of action, we believe that BP1002 may be a potential treatment for venetoclax-relapsed AML patients. The Phase 1/1b clinical trial is being conducted at several leading cancer centers in the United States, including the Weill Medical College, The University of Texas MD Anderson Cancer Center (“MD Anderson”), Scripps Health and The University of California at Los Angeles Cancer Center. On October 7, 2024, we announced that the FDA had completed its review of PK/PD data from the first two dosing cohorts (20 and 40 mg/m<sup>2</sup>) and that the enrollment for the third dosing cohort (60 mg/m<sup>2</sup>) is now complete. We expect to enroll the next planned higher dose of 90 mg/m<sup>2</sup> in the first quarter of 2025. The approved treatment cycle is two doses per week over four weeks, resulting in eight doses administered over twenty-eight days. The Phase 1b portion of the study is expected to commence after completion of BP1002 monotherapy cohorts and will assess the safety and efficacy of BP1002 in combination with decitabine in refractory/relapsed AML patients.

Our third drug candidate, Liposomal STAT3 (“BP1003”), targets the STAT3 protein and is currently in IND enabling studies as a potential treatment of pancreatic cancer, non-small cell lung cancer (“NSCLC”) and AML. Preclinical studies showing BP1003’s ability to inhibit STAT3 protein expression and cancer cell viability had been presented at AACR Annual Meetings. On September 16, 2024, we announced a publication in the peer-reviewed journal, *Biomedicines*, which highlights the therapeutic potential and broad anti-tumor effect of BP1003 in numerous preclinical solid tumor models, including breast, ovarian, and pancreatic cancer. Our lead indication for BP1003 is pancreatic cancer due to the severity of this disease and the lack of effective, life-extending treatments. For example, pancreatic adenocarcinoma is projected to be the second most lethal cancer behind lung cancer by 2030. Typical survival for a metastatic pancreatic cancer patient is about three to six months from diagnosis. We have successfully completed several IND enabling studies of BP1003 and have one additional IND enabling study to complete. Once the additional study is successfully completed, our goal is to file an IND application and initiate the first-in-humans Phase 1 study of BP1003 in patients with refractory, metastatic solid tumors, including pancreatic cancer and NSCLC.



In addition, a modified product named BP1001-A, our fourth drug candidate, has shown to enhance chemotherapy efficacy in preclinical solid tumor models. Results of the preclinical study were published in the scientific journal *Oncotarget* in July 2020. BP1001-A incorporates the same drug substance as prexigebersen but has a slightly modified formulation designed to enhance nanoparticle properties. A BP1001-A Phase 1/1b clinical trial in patients with advanced or recurrent solid tumors is being conducted at several leading cancer centers in the United States, including MD Anderson, Karmanos Cancer Institute, Mary Crowley Cancer Research and Holy Cross Hospital, Maryland. On July 17, 2023, we announced completion of the first cohort of the dose escalation portion of the Phase 1/1b clinical trial. A total of nine evaluable patients are scheduled to be treated with BP1001-A monotherapy over three dose levels in a standard 3+3 dose escalation design. The first dose cohort consisted of a starting dose of 60 mg/m<sup>2</sup>, and there were no dose limiting toxicities. Enrollment is now open for patients for the second dose cohort of 90 mg/m<sup>2</sup> which we expect to be complete in the first quarter of 2025 in order to advance to dose level 3. The Phase 1b portion of the study is expected to commence after successful completion of BP1001-A monotherapy cohorts and is intended to assess the safety and efficacy of BP1001-A in combination with paclitaxel in patients with recurrent ovarian or endometrial tumors. Phase 1b studies are also expected to be opened in combination with gemcitabine in Stage 4 pancreatic cancer and combination therapy in breast cancer.

#### *Development and Treatment for Obesity*

Insulin resistance is the major contributor to obesity, Type 2 diabetes and other related metabolic diseases. Insulin lowers blood glucose level by activating the phosphoinositol-3 kinase (PI3K)/AKT pathway. However, this insulin pathway is dysfunctional in obese patients who have Type 2 diabetes. Literature suggests that Grb2 is an inhibitor of the insulin/PI3K/AKT pathway. Upregulation of the Grb2 gene has been reported for patients with Type 2 diabetes. Knockdown of Grb2 expression enhanced insulin-induced AKT activity and glucose uptake in myoblast and hepatoma cells. Furthermore, insulin sensitivity was restored in Grb2 heterozygous knockout mice fed on high fat-induced diet. We expect that by downregulating Grb2 expression, BP1001-A will lower blood glucose level by enhancing insulin-mediated AKT activation and glucose uptake and storage.

On December 19, 2024, we announced the results of our initial preclinical work; BP1001-A, by downregulating Grb2 expression, increased the levels of phosphorylated AKT and phosphorylated FOXO-1 (a downstream AKT effector) in myoblast and hepatoma cells in the presence of insulin. These preliminary data confirmed that BP1001-A could affect the insulin/PI3K/AKT pathway and increase insulin sensitivity, thus validating BP1001-A as a potential treatment for obesity in Type 2 diabetes patients. We have initiated animal studies to confirm the efficacy of BP1001-A as a potential treatment for obesity and related metabolic diseases in Type 2 diabetes patients. If successful, we anticipate initiating a first-in-human Phase 1 clinical trial in 2025 to further validate safety, measure pharmacokinetics and establish dosing for potential pivotal trials.

Our DNabilize<sup>®</sup> technology-based products are available for out-licensing or partnering. We intend to apply our drug technology template to new disease-causing protein targets to develop new liposomal antisense drug candidates for inclusion in our pipeline that meet scientific, preclinical and commercial criteria and file new patents on these targets. We expect that these efforts will include collaboration with key scientific opinion leaders in the field of study and include developing drug candidates for diseases other than cancer. As we expand our drug development programs, we will look at indications where a systemic delivery is needed and antisense RNAi nanoparticles can be used to slow, reverse or cure a disease, either alone or in combination with another drug.

We are developing a molecular biomarker package to accompany prexigebersen treatment, the goal of which is to identify patients with a genetic profile more likely to respond to treatment thereby improving probability of success for this program. The emerging role of biomarkers has been enhancing cancer development over the past decade and has become a more common companion to many cancer development programs. We expect to develop molecular biomarker packages to accompany our new programs.

We have certain intellectual property as the basis for our current drug products in clinical development, prexigebersen, BP1002, BP1003 and BP1001-A. We are developing RNAi antisense nanoparticle drug candidates based on our own patented technology to treat cancer and autoimmune disorders where targeting a single protein may be advantageous and result in reduced patient adverse effects as compared to small molecule inhibitors with off-target and non-specific effects. We have composition of matter and method of use intellectual property for the design and manufacture of antisense RNAi nanoparticle drug products.

## Recent Developments

### *Warrant Exercises*

During the period beginning October 1, 2024 and ending on the date of this prospectus, investors have exercised certain of our outstanding pre-funded warrants to purchase 2,057,702 shares of our common stock (such exercises, the “Warrant Exercises”).

### *October 2024 Private Placement*

On October 8, 2024, we entered into a securities purchase agreement with a certain institutional and accredited investor pursuant to which we agreed to sell, in a private placement, an aggregate of (i) pre-funded warrants to purchase up to 4,597,702 shares of our common stock at an exercise price of \$0.001 per share, (ii) series A warrants to purchase up to 6,407,657 shares of our common stock at an exercise price of \$1.00 per share and (iii) series B warrants to purchase up to 6,407,657 shares of our common stock at an exercise price of \$1.00 per share for gross proceeds of approximately \$4.0 million (the “October 2024 Private Placement”). The October 2024 Private Placement closed on October 10, 2024 (the “Closing Date”). In connection with the October 2024 Private Placement, the Company and the investor agreed to cancel such investor’s series A warrants to purchase 1,809,955 shares of common stock at an exercise price of \$2.00 and series B warrants to purchase 1,809,955 shares of common stock at an exercise price of \$2.00 issued to such investor in connection with the June 2024 PIPE, effective as of the Closing Date. The net proceeds from the offering, after deducting the placement agent’s fees and expenses and our offering expenses, and excluding the proceeds, if any, from the exercises of the warrants issued in the offering, were approximately \$3.4 million.

### *Nasdaq Minimum Bid Price Compliance*

As previously reported, on December 12, 2024, we received a letter (the “Bid Price Letter”) from the Listing Qualifications Department of the Nasdaq Stock Market (“Nasdaq”) indicating that, based upon the closing bid price of our common stock for the last 30 consecutive business days, we did not meet the minimum bid price of \$1.00 per share required for continued listing on The Nasdaq Capital Market pursuant to Nasdaq Listing Rule 5550(a)(2) (the “Minimum Bid Price Rule”). In accordance with Nasdaq Listing Rule 5810(c)(3)(A), we have been provided an initial period of 180 calendar days, or until June 10, 2025, to regain compliance with the Minimum Bid Price Rule. The Bid Price Letter also indicated that if at any time before June 10, 2025 the closing bid price for our common stock is at least \$1.00 for a minimum of ten consecutive business days, Nasdaq will provide us with written notification that we comply with the Minimum Bid Price Rule.

If we do not regain compliance with the Minimum Bid Price Rule by June 10, 2025, we may be eligible for a second compliance period of 180 calendar days, provided that we meet the continued listing requirement for market value of publicly held shares and all other initial listing standards for The Nasdaq Capital Market, with the exception of the Minimum Bid Price Rule, and we notify Nasdaq of our intention to cure the deficiency during such second compliance period, including by effecting a reverse stock split, if necessary.

If we do not regain compliance with the Minimum Bid Price Rule by June 10, 2025 and we are not eligible for a second compliance period at that time, Nasdaq will provide us with written notification that our common stock may be delisted. At that time, we may appeal Nasdaq’s delisting determination to a Nasdaq Hearings Panel (the “Panel”). If we timely appeal, we would remain listed pending the Panel’s decision. There can be no assurance that, if we do appeal the delisting determination by Nasdaq to the Panel, such appeal would be successful.

We intend to continue to monitor the closing bid price of our common stock and may, if appropriate, consider implementing available options to regain compliance with the Minimum Bid Price Rule, including by effecting a reverse stock split. As previously reported, at the Company’s Annual Meeting of Stockholders on December 12, 2024 (the “Annual Meeting”), our stockholders approved an amendment to our Certificate of Incorporation to effect a reverse stock split of our common stock at a ratio of up to 1-for-30, to be determined by our board of directors, within twelve months from the date of the Annual Meeting, subject to the authority of our board of directors to abandon such reverse stock split.

### *Nasdaq Stockholders' Equity Requirement Compliance*

As previously reported, on November 19, 2024, we received a letter (the "Stockholders' Equity Letter") from the Panel granting our request for continued listing on the Nasdaq Capital Market in connection with our appeal of the delisting determination to the Panel, subject to certain conditions. On or before January 31, 2025, we must (i) demonstrate compliance with the minimum stockholders' equity requirement of at least \$2,500,000 pursuant to Nasdaq Listing Rule 5550(b)(1) (the "Stockholders' Equity Requirement"), (ii) publicly disclose compliance with the Stockholder's Equity Requirement in accordance with the terms of the Stockholders' Equity Letter and (iii) provide the Panel with income projections for the next twelve months and evidence compliance with all applicable criteria for continued listing on the Nasdaq Capital Market. If we do not satisfy these requirements, we may be subject to delisting. The Panel reserves the right to reconsider the terms of the extension based on any event, condition or circumstance that exists or develops that would, in the opinion of the Panel, make continued listing inadvisable or unwarranted.

As previously reported, on March 12, 2024, we received a deficiency letter from the Listing Qualifications Department of Nasdaq notifying us that we are not in compliance with the Stockholders' Equity Requirement. On June 12, 2024, we received a letter from Nasdaq granting an extension (the "Extension Letter") until September 8, 2024 to demonstrate compliance with the Stockholders' Equity Requirement in accordance with the terms of the Extension Letter. As previously disclosed, on September 12, 2024, we received a delisting determination letter from Nasdaq advising us that we did not meet the terms of the Extension Letter. As previously disclosed, on September 19, 2024, we submitted a hearing request to the Panel appealing Nasdaq's delisting determination. We appeared before the Panel on November 5, 2024.

We intend to continue making efforts to regain compliance with the Stockholders' Equity Requirement. However, there can be no assurance that we will be able to regain compliance with the Stockholders' Equity Requirement on or before January 31, 2025.

### **Corporate Information**

The Company was incorporated in May 2000 as a Utah corporation. In February 2008, Bio-Path Subsidiary completed a reverse merger with the Company, which at the time was traded over the counter and had no current operations. The prior name of the Company was changed to Bio-Path Holdings, Inc. and the directors and officers of Bio-Path Subsidiary became the directors and officers of Bio-Path Holdings, Inc. On March 10, 2014, our common stock ceased trading on the OTCQX and commenced trading on the Nasdaq Capital Market under the ticker symbol "BPTH." Effective December 31, 2014, we changed our state of incorporation from Utah to Delaware through a statutory conversion pursuant to the Utah Revised Business Corporation Act and the Delaware General Corporation Law. Our principal executive offices are located at 4710 Bellaire Boulevard, Suite 210, Bellaire, Texas 77401, and our telephone number is (832) 742-1357.

On February 22, 2024, we effected a reverse stock split of our outstanding shares of common stock at a ratio of 1-for-20, and our common stock began trading on the split-adjusted basis on the Nasdaq Capital Market at the commencement of trading on February 23, 2024. As a result of the reverse stock split, approximately 61,000 shares were added to our total shares outstanding due to rounding fractional shares of common stock up to a whole share of common stock. All common stock share and per share amounts in this prospectus have been adjusted to give effect to the 1-for-20 reverse stock split.

### **Risk Factor Summary**

We are providing the following summary of the risk factors disclosed in this prospectus to enhance the readability and accessibility of our risk factor disclosures. These risks are more fully described in the section titled "Risk Factors" immediately following this prospectus summary. We encourage our stockholders to carefully review the risk factors disclosed in this prospectus in their entirety for additional information regarding the material factors that make an investment in the Company speculative or risky.

- We are a clinical stage biotechnology company with no significant revenue. We have incurred significant operating losses since our inception, and we expect to incur losses for the foreseeable future and may never achieve profitability.
- We will continue to require substantial additional capital for the foreseeable future. If we are unable to raise additional capital when needed, we may be forced to delay, reduce or eliminate our drug development programs and commercialization efforts.

- We expect to expand our operations, including clinical trials, in the future and may face challenges in managing our growth, which may result in disruptions to our operations.
- Our business has a substantial risk of product liability claims. If we are unable to obtain or maintain appropriate levels of insurance, a product liability claim could adversely affect our business.
- Our ability to use our net operating loss carryforwards and certain other tax attributes may be limited.
- We face competition from entities that have developed or may develop therapeutic candidates for our target disease indications, including companies developing novel treatments and technology platforms based on modalities and technology that may be similar to ours. If these companies develop technologies, including delivery technologies, or therapeutic candidates more rapidly than we do, or their technologies are more effective, our ability to develop and successfully commercialize therapeutic candidates may be adversely affected.
- Unstable market and economic conditions may have serious adverse effects on our ability to raise funds, which may cause delays, restructuring or cessation of our operations.
- We must complete extensive clinical trials to demonstrate the safety and efficacy of our drug candidates. If we are unable to demonstrate the safety and efficacy of our drug candidates, we will not be successful.
- Delays in the commencement of clinical trials of our drug candidates could result in increased costs to us and delay our ability to generate revenues.
- Delays in the completion of, or the termination of, clinical trials of our drug candidates could result in increased costs to us and could delay or prevent us from generating revenues.
- If we are unable to obtain U.S. and/or foreign regulatory approval, we will be unable to commercialize our drug candidates.
- Changes in existing laws and regulations affecting the healthcare industry could increase our costs and otherwise adversely affect our business.
- We rely on third parties to conduct clinical trials for our drug candidates, and their failure to timely and properly perform their obligations may result in costs and delays that prevent us from obtaining regulatory approval or successfully commercializing our drug candidates.
- We rely on third parties for manufacturing of our clinical drug supplies; our dependence on these manufacturers may impair the development of our drug candidates.
- There are underlying risks associated with the manufacture of our drug candidates, which have never been manufactured in large scale. Furthermore, we anticipate continued reliance on third-party manufacturers if we are successful in obtaining marketing approval from the FDA or other regulatory agencies for any of our drug candidates.
- We may experience delays in the development of our drug candidates if the third-party manufacturers of our drug candidates cannot meet FDA requirements relating to current Good Manufacturing Practices.
- If we are unable to establish sales and marketing capabilities or enter into agreements with third parties to market and sell our drug candidates, we may not generate product revenue.
- If our future drugs do not achieve market acceptance, we may be unable to generate significant revenue, if any.
- If our patent position does not adequately protect our drug candidates, others could compete against us more directly, which would harm our business.

- If we infringe or are alleged to infringe intellectual property rights of third parties, our business could be harmed.
- Raising additional capital may cause dilution to existing stockholders, restrict our operations or require us to relinquish rights. Additionally, sales of a substantial number of shares of our common stock or other securities in the public market could cause our stock price to fall.
- We may issue additional shares of our common stock in accordance with our equity incentive plans or upon exercise or conversion of outstanding securities that are exercisable for or convertible into shares of our common stock, which may cause dilution to existing stockholders.
- The trading price of our common stock has been volatile and is likely to be volatile in the future.
- Our common stock is thinly traded and in the future may continue to be thinly traded, and our stockholders may be unable to sell at or near asking prices or at all if they need to sell their shares to raise money or otherwise desire to liquidate such shares.
- We do not anticipate paying cash dividends, and accordingly stockholders must rely on stock appreciation for any return on their investment in us.
- Our management is required to devote substantial time and incur additional expense to comply with public company regulations.
- Our common stock may be delisted from The Nasdaq Capital Market which could negatively impact the price of our common stock and our ability to access the capital markets.

### The Offering

Common stock offered by us

Up to        shares

Pre-Funded Warrants offered by us

We are also offering Pre-Funded Warrants, in lieu of shares of common stock, to those investors whose purchase of shares of our common stock in this offering would result in the investor, together with its affiliates and certain related parties, beneficially owning more than 4.99% (or, at the election of the investor, 9.99%) of our outstanding common stock immediately following the consummation of this offering. Each Pre-Funded Warrant will be exercisable for one share of our common stock. Each Pre-Funded Warrant and the accompanying Common Warrant to purchase one share of our common stock is being offered at an offering price equal to the combined public offering price at which each share of common stock and accompanying Common Warrant is being offered, minus \$0.001. The exercise price of the Pre-Funded Warrants will be \$0.001 per share, and the Pre-Funded Warrants will be immediately exercisable and may be exercised at any time until exercised in full. This offering also relates to the shares of common stock issuable upon exercise of any Pre-Funded Warrants sold in this offering. For each Pre-Funded Warrant we sell, the number of shares of common stock we are offering will be decreased on a one-for-one basis. The number of Common Warrants sold in this offering will not change as a result of a change in the mix of the shares of our common stock and Pre-Funded Warrants sold. There is no established public trading market for the Pre-Funded Warrants, and we do not expect a market to develop. In addition, we do not intend to list the Pre-Funded Warrants on the Nasdaq Capital Market, any other national securities exchange or any other nationally recognized trading system.

Common Warrants offered by us

Series A Warrants to purchase up to an aggregate of        shares of common stock and Series B Warrants to purchase up to an aggregate of        shares of common stock. Each share of our common stock and each Pre-Funded Warrant are being sold together with accompanying Common Warrants. The exercise price of the Common Warrants will be \$        per share. The Common Warrants will be exercisable on the Warrant Stockholder Approval Date, provided that if the Pricing Conditions are met, the Common Warrants will be exercisable immediately. The Series A Warrants will expire five years from the Warrant Stockholder Approval Date, provided that if the Pricing Conditions are met, the Series A Warrants will expire five years        from the date of issuance. The Series B Warrants will expire twenty-four months from the Warrant Stockholder Approval Date, provided that if the Pricing Conditions are met, the Series B Warrants will expire twenty-four months from the date of issuance. This offering also relates to the shares of common stock issuable upon exercise of Common Warrants. There is no established public trading market for the Common Warrants and we do not expect a market to develop. In addition, we do not intend to list the Common Warrants on the Nasdaq Capital Market,

	any other national securities exchange or any other nationally recognized trading system.
Placement Agent Warrants offered by us	We have also agreed to issue to the Placement Agent or its designees as compensation in connection with this offering Placement Agent Warrants to purchase up to        shares of common stock. The Placement Agent Warrants an exercise price of \$        per share (equal to        % of the assumed combined public offering price per share of common stock and accompanying Common Warrants). The Placement Agents Warrants will be exercisable on the Warrant Stockholder Approval Date, provided that if the Pricing Conditions are met, the Placement Agent Warrants will be exercisable immediately and will terminate on the five-year anniversary of commencement of sales in this offering. This prospectus also relates to the offering of the shares of common stock issuable upon exercise of the Placement Agent Warrants. To better understand the terms of the Placement Agent Warrants, you should carefully read the descriptions of the Placement Agent Warrants in the “Description of Securities We Are Offering” and “Plan of Distribution” sections of this prospectus. You should also read the form of Placement Agent Warrant, which will be filed as an exhibit to the registration statement that includes this prospectus.
Common stock to be outstanding immediately after this offering <sup>(1)</sup>	shares, assuming no sale of Pre-Funded Warrants and assuming no exercise of any Common Warrants issued in this offering.
Lock-up agreements	We, our executive officer and our directors will enter into lock-up agreements with the Placement Agent. Under these agreements, we and each of these persons may not offer, sell, contract to sell or otherwise dispose of or hedge common stock or securities convertible into or exchangeable for common stock, subject to certain exceptions. The restrictions contained in these agreements will be in effect for a period of        days after the date of the closing of this offering. For more information, see “Plan of Distribution.”
Use of proceeds	We currently expect to use the net proceeds from this offering for working capital and general corporate purposes. See “Use of Proceeds.”
Risk factors	An investment in our company involves a high degree of risk. Please refer to the sections titled “Risk Factors,” “Special Note Regarding Forward-Looking Statements” and other information included in this prospectus for a discussion of factors you should carefully consider before investing our securities.
Nasdaq Capital Market Symbol	“BPTH”
<hr/> <p>(1) The number of shares of common stock to be outstanding after this offering is based on 5,767,892 shares of our common stock outstanding as January 15, 2025, which excludes, as of such date:</p>	

- 96,389 shares of common stock reserved for issuance upon the exercise of outstanding options granted under our equity incentive plans with a weighted average exercise price of \$71.40 per share;
- 1,200,948 additional shares of common stock reserved for future issuance under our 2022 Stock Incentive Plan, as amended (our “2022 Stock Incentive Plan”); and
- 16,490,014 shares of common stock that may be issued upon exercise of outstanding warrants with a weighted average exercise price of \$1.05 per share.

Unless otherwise indicated, all information contained in this prospectus assumes no sale of any Pre-Funded Warrants in this offering, which, if sold, would reduce the number of shares of common stock that we are offering on a one-for-one basis, no exercise of any Common Warrants issued in this offering, no exercise of any Placement Agent Warrants to be issued to the Placement Agent or its designees as compensation in connection with this offering., and no exercise of the options or warrants described above.



## RISK FACTORS

*An investment in our company involves a high degree of risk. Before you make a decision to invest in our securities, you should consider carefully the risks described below. Any of these risks could have a material adverse effect on our business, prospects, financial condition and results of operations. In any such case, the trading price of our securities could decline and you could lose all or part of your investment. Additional risks not presently known to us or that we currently deem immaterial may also adversely affect our business operations.*

### **Risks Related to this Offering**

***You will experience immediate and substantial dilution in the net tangible book value per share of the common stock you purchase.***

Since the effective price per share of our common stock being offered is substantially higher than the net tangible book value per share of our common stock, you will suffer substantial dilution in the net tangible book value of the common stock you purchase in this offering. Based on the assumed combined public offering price of \$      per share of common stock and accompanying Common Warrants to purchase one share of our common stock being sold in this offering (the last reported sale price per share of our common stock on the Nasdaq Capital Market on      , 2025) and our pro forma as adjusted net tangible book value per share as of September 30, 2024, if you purchase shares of common stock in this offering, you will suffer immediate and substantial dilution of approximately \$      per share in the net tangible book value of the common stock, after deducting placement agent fees and estimated offering expenses payable by us. See the section titled “Dilution” in this prospectus for a more detailed discussion of the dilution you will incur if you purchase securities in this offering. The description in this paragraph assumes no sale of Pre-Funded Warrants, which, if sold, would reduce the number of shares of common stock that we are offering on a one-for-one basis until such warrants are exercised.

***If you purchase our securities in this offering, you may experience future dilution as a result of future equity offerings or other equity issuances.***

In order to raise additional capital, we believe that we will offer and issue additional shares of our common stock or other securities convertible into or exchangeable for our common stock in the future. We are generally not restricted from issuing additional securities, including shares of common stock, securities that are convertible into or exchangeable for, or that represent the right to receive, common stock or substantially similar securities. As a result of the dilution in net tangible book value to investors purchasing securities in this offering, investors may receive significantly less than the purchase price paid in this offering, if anything, in the event of the liquidation of our company. The issuance of securities in future offerings may cause further dilution to our stockholders, including investors in this offering. We cannot assure you that we will be able to sell shares or other securities in any other offering at a price per share that is equal to or greater than the price per share paid by investors in this offering, and investors purchasing other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock or other securities convertible into or exchangeable for our common stock in future transactions may be higher or lower than the price per share in this offering.

In addition, we have a significant number of stock options and warrants outstanding. To the extent that outstanding stock options or warrants have been or may be exercised or other shares issued, you may experience further dilution. Further, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans.

***If we are required to obtain Warrant Stockholder Approval, until we are able to receive such approval the Common Warrants will not be exercisable, and if we are unable to obtain such approval the Common Warrants will have no value.***

The Common Warrants will have an exercise price of \$      per share and will be exercisable beginning on the Warrant Stockholder Approval Date; provided, however, if the Pricing Conditions are met, the Common Warrants will be exercisable upon issuance. The Series A Warrant will expire five years from the Warrant Stockholder Approval Date, provided that if the Pricing Conditions are met, the Series A Warrants will expire five years from the date of issuance and the Series B Warrants will expire twenty-four months from the Warrant Stockholder Approval Date, provided that if the Pricing Conditions are met, the Series B Warrants will expire twenty-four months from the date of issuance.

If we are required to obtain Warrant Stockholder Approval, the Common Warrants will not be exercisable until, and unless, we obtain the Warrant Stockholder Approval from our stockholders. While we intend to promptly seek the Warrant Stockholder Approval, if required, there is no guarantee that the Warrant Stockholder Approval will ever be obtained. If we are unable to obtain the Warrant Stockholder Approval, the Common Warrants will have no value. In addition, we will incur substantial cost, and management will devote substantial time and attention, in attempting to obtain the Warrant Stockholder Approval.

***There may be future sales of our securities or other dilution of our equity, which may adversely affect the market price of our common stock.***

With limited exceptions, we are generally not restricted from issuing additional common stock, including any securities that are convertible into or exchangeable for, or that represent the right to receive, common stock. The market price of our common stock could decline as a result of sales of common stock or securities that are convertible into or exchangeable for, or that represent the right to receive, common stock after this offering or the perception that such sales could occur.

***Our management has significant flexibility in using the net proceeds of this offering.***

We currently intend to use the net proceeds from this offering for working capital and general corporate purposes. Our management will have significant flexibility in applying the net proceeds of this offering and could use them for purposes other than those contemplated at the time of this offering. Management's failure to use these funds effectively could have an adverse effect on the value of our common stock and could make it more difficult and costly to raise funds in the future. See "Use of Proceeds" on page 41 of this prospectus.

***Purchasers who purchase our securities in this offering pursuant to a securities purchase agreement may have rights not available to purchasers that purchase without the benefit of a securities purchase agreement.***

In addition to rights and remedies available to all purchasers in this offering under federal securities and state law, the purchasers that enter into a securities purchase agreement will also be able to bring claims of breach of contract against us. The ability to pursue a claim for breach of contract provides those investors with the means to enforce the covenants uniquely available to them under the securities purchase agreement including, but not limited to: (i) timely delivery of securities; (ii) agreement to not obtaining any financings for days from closing; and (iii) indemnification for breach of contract.

***Holders of the Pre-Funded Warrants and the Common Warrants offered hereby will have no rights as common stockholders with respect to the shares our common stock underlying the warrants until such holders exercise their warrants and acquire our common stock, except as otherwise provided in the Pre-Funded Warrants and the Common Warrants.***

Until holders of the Common Warrants and the Pre-Funded Warrants acquire shares of our common stock upon exercise thereof, such holders will have no rights with respect to the shares of our common stock underlying such warrants, except to the extent that holders of such Common Warrants and Pre-Funded Warrants will have certain rights to participate in distributions or dividends paid on our common stock as set forth in the Common Warrants and the Pre-Funded Warrants. Upon exercise of the Common Warrants and the Pre-Funded Warrants, the holders will be entitled to exercise the rights of a common stockholder only as to matters for which the record date occurs after the exercise date.

***The Common Warrants are speculative in nature, and holders of the Common Warrants offered and sold in this offering will have no rights as common stockholders until such holders exercise their Common Warrants and acquire our common stock.***

There can be no assurance that the market price of our common stock will ever equal or exceed the exercise price of the Common Warrants offered and sold in this offering. Consequently, there can be no assurance whether it will ever be profitable for holders to exercise their warrants. In addition, until holders of the Pre-Funded Warrants and the Common Warrants offered and sold in this offering acquire shares of our common stock upon exercise of such warrants, holders will have no rights with respect to the shares of our common stock issuable upon exercise of such warrants. Upon exercise of the Pre-Funded Warrants, if any, and the Common Warrants, the holders will be entitled to exercise the rights of a common stockholder only as to matters for which the record date occurs after the exercise date.

***There is no public market for the Pre-Funded Warrants or Common Warrants being offered in this offering.***

There is no established public trading market for the Pre-Funded Warrants or Common Warrants being offered in this offering, and we do not expect a market to develop. In addition, we do not intend to apply to list the Pre-Funded Warrants or Common Warrants on any securities exchange or nationally recognized trading system, including the Nasdaq Capital Market. Without an active market, the liquidity of the Pre-Funded Warrants and Common Warrants will be limited.

***Our common stock may be delisted from the Nasdaq Capital Market which could negatively impact the price of our common stock, liquidity and our ability to access the capital markets.***

The listing standards of the Nasdaq Capital Market provide that a company, in order to qualify for continued listing, must maintain a minimum stock price of \$1.00 and satisfy standards relative to minimum stockholders' equity, minimum market value of publicly held shares and various additional requirements. If we fail to comply with all listing standards applicable to issuers listed on the Nasdaq Capital Market, our common stock may be delisted. If our common stock is delisted, it could reduce the price of our common stock and the levels of liquidity available to our stockholders. In addition, the delisting of our common stock could materially adversely affect our access to the capital markets and any limitation on liquidity or reduction in the price of our common stock could materially adversely affect our ability to raise capital. Delisting from the Nasdaq Capital Market could also result in other negative consequences, including the potential loss of confidence by suppliers, customers and employees, the loss of institutional investor interest and fewer business development opportunities.

As previously reported, on December 12, 2024, we received the Bid Price Letter from the Listing Qualifications Department of Nasdaq indicating that, based upon the closing bid price of our common stock for the last 30 consecutive business days, we did not meet the Minimum Bid Price Rule. In accordance with Nasdaq Listing Rule 5810(c)(3)(A), we have been provided an initial period of 180 calendar days, or until June 10, 2025, to regain compliance with the Minimum Bid Price Rule. The Bid Price Letter also indicated that if at any time before June 10, 2025 the closing bid price for our common stock is at least \$1.00 for a minimum of ten consecutive business days, Nasdaq will provide us with written notification that we comply with the Minimum Bid Price Rule. If we do not regain compliance with the Minimum Bid Price Rule by June 10, 2025, we may be eligible for a second compliance period of 180 calendar days, provided that we meet the continued listing requirement for market value of publicly held shares and all other initial listing standards for The Nasdaq Capital Market, with the exception of the bid price requirement, and we notify Nasdaq of our intention to cure the deficiency during such second compliance period, including by effecting a reverse stock split, if necessary. If we do not regain compliance with the Minimum Bid Price Rule by June 10, 2025 and we are not eligible for a second compliance period at that time, Nasdaq will provide us with written notification that our common stock may be delisted. At that time, we may appeal Nasdaq's delisting determination to a Panel. If we timely appeal, we would remain listed pending the Panel's decision. There can be no assurance that, if we do appeal the delisting determination by Nasdaq to the Panel, such appeal would be successful. As previously reported, at the Company's 2024 Annual Meeting, our stockholders approved an amendment to our Certificate of Incorporation to effect a reverse stock split of our common stock at a ratio of up to 1-for-30, to be determined by our board of directors, within twelve months from the date of the 2024 Annual Meeting, subject to the authority of our board of directors to abandon such reverse stock split.

In addition, as previously reported, on November 19, 2024, we received the Stockholders' Equity Letter from the Panel granting our request for continued listing on the Nasdaq Capital Market in connection with our appeal of the delisting determination to the Panel, subject to certain conditions. On or before January 31, 2025, we must (i) demonstrate compliance with the Stockholders' Equity Requirement, (ii) publicly disclose compliance with the Stockholder's Equity Requirement in accordance with the terms of the Stockholders' Equity Letter and (iii) provide the Panel with income projections for the next twelve months and evidence compliance with all applicable criteria for continued listing on the Nasdaq Capital Market. If we do not satisfy these requirements, we may be subject to delisting. The Panel reserves the right to reconsider the terms of the extension based on any event, condition or circumstance that exists or develops that would, in the opinion of the Panel, make continued listing inadvisable or unwarranted. As previously reported, on March 12, 2024, we received a deficiency letter from the Listing Qualifications Department of Nasdaq notifying us that we are not in compliance with the Stockholders' Equity Requirement. On June 12, 2024, we received the Extension Letter until September 8, 2024 to demonstrate compliance with the Stockholders' Equity Requirement in accordance with the terms of the Extension Letter. As previously disclosed, on September 12, 2024, we received a delisting determination letter from Nasdaq advising us that we did not meet the terms of the Extension Letter. As previously disclosed, on September 19, 2024, we submitted a hearing request to the Panel appealing Nasdaq's delisting determination. We appeared before the Panel on November 5, 2024. There can be no assurance that we will be able to regain compliance with the Stockholders' Equity Requirement on or before January 31,

2025, or any other applicable requirements for continued listing on the Nasdaq Capital Market, or that we will be able to maintain such compliance in the future.

***Resales of our shares of common stock in the public market by our stockholders as a result of this offering may cause the market price of our shares of common stock to fall.***

We are registering \_\_\_\_\_ shares of common stock, as well as \_\_\_\_\_ shares of common stock, in the aggregate, issuable upon the exercise of the Pre-Funded Warrants and the Common Warrants offered under this prospectus. Sales of substantial amounts of our shares of common stock in the public market, or the perception that such sales might occur, could adversely affect the market price of our shares of common stock. The issuance of new shares of common stock could result in resales of our shares of common stock by our current stockholders concerned about the potential ownership dilution of their holdings. Furthermore, in the future, we may issue additional shares of common stock or other equity or debt securities exercisable or convertible into shares of common stock. Any such issuance could result in substantial dilution to our existing shareholders and could cause our stock price to decline.

***Even if this offering is successful, we will need to raise additional capital in the future to continue operations, which may not be available on acceptable terms, if at all. Failure to obtain necessary capital when needed may force us to delay, limit or terminate our drug development efforts or other operations.***

As of September 30, 2024, we had an accumulated deficit of \$114.7 million. To date, we have not generated any revenue from the sale of our drug candidates and we do not expect to generate any revenue from sales of our drug candidates for the foreseeable future. We expect to continue to incur significant operating losses and we anticipate that our losses may increase substantially as we expand our drug development programs and commercialization efforts. As of September 30, 2024, we had a cash balance of \$0.6 million. We do not believe that our available cash at September 30, 2024, together with the net proceeds received from the October 2024 Private Placement, will be sufficient to fund current liabilities and capital expenditure requirements for the next 12 months from November 14, 2024, the filing date of our Form 10-Q for the nine months ended September 30, 2024. The Company's ability to continue as a going concern is dependent upon obtaining funding through one or more sources described below within the next 12 months to meet its planned obligations and pay its liabilities. Even if this offering is successful, we must raise additional funds in order to continue operating our business.

We may finance our foreseeable cash requirements through cash on hand, debt financings and public or private equity offerings. Additionally, we may seek collaborations and license arrangements for our drug candidates. We may seek to access the public or private equity markets whenever conditions are favorable. We currently have no lines of credit or other arranged access to debt financing. If we are unable to obtain funding due to unfavorable terms or market conditions, management has determined that it can reduce spending on its day-to-day operations, sell laboratory assets and temporarily delay planned activities if needed. However, our ability to continue as a going concern is dependent upon obtaining funding through one or more sources described above within the next 12 months to meet our planned obligations and pay our liabilities. We estimate that we will receive net proceeds of approximately \$ \_\_\_\_\_ million from the sale of the securities offered by us in this offering, based on the assumed combined public offering price of \$ \_\_\_\_\_ per share (the last reported sale price per share of our common stock on the Nasdaq Capital Market on \_\_\_\_\_, 2025) and after deducting the estimated Placement Agent fees and estimated offering expenses payable by us, and excluding the proceeds, if any, from the exercise of the Pre-Funded Warrants and Common Warrants issued pursuant to this offering. In the event of a decrease in the net proceeds to us from this offering as a result of a decrease in the assumed combined public offering price or the number of shares offered by us, we may need to raise additional capital sooner than we anticipate. In addition, we cannot provide assurances that our plans will not change or that changed circumstances will not result in the depletion of our capital resources more rapidly than we currently anticipate.

Our ongoing future capital requirements will depend on numerous factors, including:

- the rate of progress, results and costs of completion of ongoing clinical trials of our drug candidates;
- the rate of progress, results and costs of completion of ongoing preclinical testing of our drug candidates;
- the size, scope, rate of progress, results and costs of completion of any potential future clinical trials and preclinical tests of our drug candidates that we may initiate;

- the costs to obtain adequate supply of the compounds necessary for our drug candidates;
- the costs of obtaining regulatory approval of our drug candidates;
- the scope, prioritization and number of drug development programs we pursue;
- the costs for preparing, filing, prosecuting, maintaining and enforcing our intellectual property rights and defending intellectual property-related claims;
- the extent to which we acquire or in-license other products and technologies and the costs to develop those products and technologies;
- the costs of future commercializing activities, including product sales, marketing, manufacturing and distribution, of any of our drug candidates or other products for which marketing approval has been obtained;
- our ability to establish strategic collaborations and licensing or other arrangements on terms favorable to us; and
- competing technological and market developments.

Any additional fundraising efforts may divert our management from their day to day activities, which may adversely affect our ability to develop and commercialize our drug candidates. Our ability to raise additional funds will depend, in part, on the success of our product development activities and other factors related to financial, economic and market conditions, many of which are beyond our control. There can be no assurance that we will be able to raise additional capital when needed or on terms that are favorable to us, if at all. If adequate funds are not available on a timely basis, we may be forced to:

- delay, reduce the scope of or eliminate one or more of our drug development programs;
- relinquish, license or otherwise dispose of rights to technologies, drug candidates or products that we would otherwise seek to develop or commercialize ourselves at an earlier stage or on terms that are less favorable than might otherwise be available; or
- liquidate and dissolve the Company.

If our operating plans change, we may require additional capital sooner than planned. Such additional financing may not be available when needed or on terms favorable to us. In addition, we may seek additional capital due to favorable market conditions or strategic considerations, even if we believe we have sufficient funds for our current and future operating plan.

***This is a best efforts offering, no minimum amount of securities is required to be sold.***

The Placement Agent has agreed to use its reasonable best efforts to solicit offers to purchase the securities being offered in this offering. The Placement Agent has no obligation to buy any of the securities from us or to arrange for the purchase or sale of any specific number or dollar amount of the securities. There is no required minimum number of securities or amount of proceeds that must be sold as a condition to completion of this offering. Because there is no minimum offering amount required as a condition to the closing of this offering, the actual offering amount, Placement Agent fees and proceeds to us are not presently determinable and may be substantially less than the maximum amounts set forth above. We may sell fewer than all of the securities offered hereby, which may significantly reduce the amount of proceeds received by us, and investors in this offering will not receive a refund in the event that we do not sell an amount of securities sufficient to fund for our operations, as described under the heading “*Use of Proceeds*” on page 41 of this prospectus.

## Risks Related to Our Business

***We are a clinical stage biotechnology company with no significant revenue. We have incurred significant operating losses since our inception, and we expect to incur losses for the foreseeable future and may never achieve profitability.***

We have incurred significant operating losses since our inception. As of September 30, 2024, we had an accumulated deficit of \$114.7 million. To date, we have not generated any revenue from the sale of our drug candidates and we do not expect to generate any revenue from sales of our drug candidates for the foreseeable future. We expect to continue to incur significant operating losses and we anticipate that our losses may increase substantially as we expand our drug development programs and commercialization efforts.

To achieve profitability, we must successfully develop and obtain regulatory approval for one or more of our drug candidates and effectively commercialize any drug candidates we develop. Even if we succeed in developing and commercializing one or more of our drug candidates, we may not be able to generate sufficient revenue and we may never be able to achieve or sustain profitability.

***We will continue to require substantial additional capital for the foreseeable future. If we are unable to raise additional capital when needed, we may be forced to delay, reduce or eliminate our drug development programs and commercialization efforts.***

We expect to continue to incur significant operating expenses in connection with our ongoing activities, including conducting clinical trials, manufacturing and seeking regulatory approval of our drug candidates, prexigebersen, BP1002, BP1003 and BP1001-A. In addition, if we obtain regulatory approval of one or more of our drug candidates, we expect to incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution.

As of September 30, 2024, we had \$0.6 million in cash on hand. We have determined that the Company's available cash as of September 30, 2024, together with the net proceeds received from the October 2024 Private Placement, will not be sufficient to fund current liabilities and capital expenditure requirements for the next 12 months from November 14, 2024, the filing date of our Form 10-Q for the nine months ended September 30, 2024. Our ongoing future capital requirements will depend on numerous factors, including:

- the rate of progress, results and costs of completion of ongoing clinical trials of our drug candidates;
- the rate of progress, results and costs of completion of ongoing preclinical testing of our drug candidates;
- the size, scope, rate of progress, results and costs of completion of any potential future clinical trials and preclinical tests of our drug candidates that we may initiate;
- the costs to obtain adequate supply of the compounds necessary for our drug candidates;
- the costs of obtaining regulatory approval of our drug candidates;
- the scope, prioritization and number of drug development programs we pursue;
- the costs for preparing, filing, prosecuting, maintaining and enforcing our intellectual property rights and defending intellectual property-related claims;
- the extent to which we acquire or in-license other products and technologies and the costs to develop those products and technologies;
- the costs of future commercializing activities, including product sales, marketing, manufacturing and distribution, of any of our drug candidates or other products for which marketing approval has been obtained;
- our ability to establish strategic collaborations and licensing or other arrangements on terms favorable to us; and
- competing technological and market developments.

Any additional fundraising efforts may divert our management from their day to day activities, which may adversely affect our ability to develop and commercialize our drug candidates. Our ability to raise additional funds will depend, in part, on the success of our product development activities and other factors related to financial, economic and market conditions, many of which are beyond our control. There can be no assurance that we will be able to raise additional capital when needed or on terms that are favorable to us, if at all. If adequate funds are not available on a timely basis, we may be forced to:

- delay, reduce the scope of or eliminate one or more of our drug development programs;
- relinquish, license or otherwise dispose of rights to technologies, drug candidates or products that we would otherwise seek to develop or commercialize ourselves at an earlier stage or on terms that are less favorable than might otherwise be available; or
- liquidate and dissolve the Company.

If our operating plans change, we may require additional capital sooner than planned. Such additional financing may not be available when needed or on terms favorable to us. In addition, we may seek additional capital due to favorable market conditions or strategic considerations, even if we believe we have sufficient funds for our current and future operating plan.

***The report of our independent registered public accounting firm contains an emphasis of a matter regarding substantial doubt about our ability to continue as a going concern.***

The report of our independent registered public accounting firm relating to our December 31, 2023 consolidated financial statements contains an emphasis of a matter regarding substantial doubt about our ability to continue as a going concern. As discussed in Note 2 to the consolidated financial statements included herein, we have suffered recurring losses from operations and have a projected cash deficiency that raise substantial doubt about our ability to continue as a going concern. The consolidated financial statements have been prepared assuming we will continue as a going concern and do not include any adjustments that might result from the outcome of this uncertainty.

We have determined that the Company's available cash as of September 30, 2024, together with the net proceeds received from the October 2024 Private Placement will not be sufficient to fund current liabilities and capital expenditure requirements for the next 12 months from November 14, 2024, the filing date of our Form 10-Q for the nine months ended September 30, 2024. We may finance our foreseeable cash requirements through cash on hand, debt financings and public or private equity offerings. Additionally, we may seek collaborations and license arrangements for our drug candidates. We may seek to access the public or private equity markets whenever conditions are favorable. We currently have no lines of credit or other arranged access to debt financing. If we are unable to obtain funding due to unfavorable terms or market conditions, management has determined that it can reduce spending on its day-to-day operations, sell laboratory assets and temporarily delay planned activities if needed. However, our ability to continue as a going concern is dependent upon obtaining funding through one or more sources described above to meet our planned obligations and pay our liabilities.

***The pharmaceutical and biotechnology industry is highly competitive. If we are unable to compete effectively, our drug candidates may be rendered noncompetitive or obsolete.***

We are engaged in segments of the pharmaceutical and biotechnology industry that are highly competitive and characterized by rapid and significant technological change. Many large pharmaceutical and biotechnology companies, academic and research institutions, governmental agencies and other public and private research organizations are pursuing the development of novel drugs that target AML, CML, ALL, MDS, lymphoma, ovarian, breast cancer, solid tumors and other cancers generally. We face, and expect to continue to face, intense and increasing competition as new products enter the market and advanced technologies become available. Our competitors may discover, develop or commercialize products or other novel technologies that are more effective, safer or less costly than our drug candidates. Our competitors may also obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for our drug candidates.

Many of our competitors have:

- significantly greater capital, technical and human resources than we have and may be better equipped to discover, develop, manufacture and commercialize drug candidates;
- more experience in drug discovery, development and commercialization, obtaining regulatory approvals and manufacturing and marketing pharmaceutical products;
- drug candidates that have been approved or are in late-stage clinical development; and/or
- collaboration arrangements in our target markets with leading companies and research institutions.

Mergers and acquisitions in the pharmaceutical and biotechnology industry 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, establishing clinical trial sites and patent registration for clinical trials, and acquiring technologies complementary to, or necessary for, our drug candidates and programs.

Competitive products and technological developments may render our drug candidates noncompetitive or obsolete before we can recover the expenses of developing and commercializing our drug candidates. Furthermore, the development of new treatment methods and/or the widespread adoption or increased utilization of any vaccine for the diseases we are targeting could render our drug candidates noncompetitive, obsolete or uneconomical. If we successfully develop and obtain approval for any of our drug candidates, we will face competition based on the safety and effectiveness of our drug candidates, the timing of their entry into the market in relation to competitive products in development, the availability and cost of supply, marketing and sales capabilities, reimbursement coverage, price, patent position and other factors. If we successfully develop drug candidates but those drug candidates do not achieve and maintain market acceptance, our business will not be successful.

***Future collaboration arrangements to leverage our capabilities may not be successful.***

As part of our business strategy, we may enter into collaborative arrangements for the development and commercialization of our drug candidates. For our collaboration efforts to be successful, we must identify partners whose competencies complement ours. We must also successfully enter into collaboration agreements with them on terms attractive to us and integrate and coordinate their resources and capabilities with our own. We may be unsuccessful in entering into collaboration agreements with acceptable partners or negotiating favorable terms in these agreements. In addition, we may face a disadvantage in seeking to enter into or negotiating collaborations with potential partners because other potential collaborators may have greater management and financial resources than we do.

If we do enter into collaborative arrangements, the success of these collaboration arrangements will depend heavily on the efforts and activities of our collaborators. Furthermore, we may face risks and uncertainties in connection with collaborative arrangements, including:

- inability to integrate the resources or capabilities of collaborators;
- collaborators may prove difficult to work with or less skilled than we originally expected;
- disputes may arise with respect to the ownership of rights to technology developed with collaborators;
- disagreements with collaborators could delay or terminate the research, development or commercialization of products or result in litigation or arbitration;
- difficulty enforcing our arrangements if one of our collaborators fails to perform;



- termination of our collaboration arrangements by collaborators, which could make it difficult for us to attract new collaborators or adversely affect the perception of us in the business or financial communities;
- collaborators may have considerable discretion in electing whether to pursue the development of any additional drug candidates and may pursue technologies or products either on their own or in collaboration with our competitors that are similar to or competitive with our technologies; and
- collaborators may change the focus of their development and commercialization efforts.

If we are unsuccessful in our collaborative efforts, our ability to develop and market drug candidates could be severely limited.

***If we are unable to attract and retain key management, scientific personnel and advisors, we may not successfully develop our drug candidates or achieve our other business objectives.***

Our success depends on the availability and contributions of members of our senior management team, scientific team and other key personnel. The loss of services of any of these individuals could delay, reduce or prevent our drug development and other business objectives. Furthermore, recruiting and retaining qualified scientific personnel to perform drug development work will be critical to our success. We face intense competition for qualified individuals from numerous pharmaceutical and biotechnology companies, universities, governmental entities and other public and private research institutions. We may be unable to attract and retain these individuals, and our failure to do so could materially adversely affect our business and financial condition.

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

We are exposed to the risk of fraud or other misconduct by our employees, principal investigators, consultants, advisors and commercial partners. Misconduct by these persons could include intentional failures to comply with the regulations of the FDA and non-U.S. regulators, comply with healthcare fraud and abuse laws and regulations in the U.S. and abroad, report financial information or data accurately or 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. Such misconduct could involve the improper use of information obtained in the course of clinical studies, which could result in regulatory sanctions and cause serious harm to our business, financial condition and reputation. We currently have codes of business conduct and ethics applicable to all of our employees, but it is not always possible to identify and deter employee misconduct, and our codes of business conduct and ethics and the other 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 comply with these 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 result in the imposition of significant fines or other sanctions, which could materially adversely affect our business and financial condition. Whether or not we are successful in defending against such actions or investigations, we could incur substantial costs, including legal fees, and divert the attention of management in defending ourselves against any of these claims or investigations.

***We expect to expand our operations, including clinical trials, in the future and may face challenges in managing our growth, which may result in disruptions to our operations.***

We expect to expand our operations, including clinical trials for our drug candidates, over time. To successfully manage future growth, we may need to implement and improve our managerial, operational and financial resources, and may need to expand our facilities and recruit and train additional qualified personnel. Our expected growth may also require significant financial resources, which may not be available when needed or on terms favorable to us. Our senior management may be required to devote substantial attention to managing growth activities and may be unable to effectively manage the expansion of our operations due to our limited resources, which may result in disruptions to our business operations and could harm our business and financial condition.

***If we acquire or license technologies, resources or drug candidates, we will incur a variety of costs and may never realize benefits from the transaction.***

If appropriate opportunities become available, we may license or acquire technologies, resources, drugs or drug candidates. We may never realize the anticipated benefits of such a transaction. In particular, due to the risks inherent in drug development, we may not successfully develop or obtain marketing approval for the drug candidates we acquire. Future licenses or acquisitions could result in potentially dilutive issuances of our equity securities, the incurrence of debt, the creation of contingent liabilities, material impairment expenses related to goodwill and impairment or amortization expenses related to other intangible assets, which could harm our business and financial condition.

***Our business has a substantial risk of product liability claims. If we are unable to obtain or maintain appropriate levels of insurance, a product liability claim could adversely affect our business.***

Our business exposes us to significant potential product liability risks that are inherent in the development, manufacturing and sales and marketing of human therapeutic products. Although we do not currently commercialize any products, claims could be made against us based on the use of our drug candidates in clinical trials. Product liability claims could delay or prevent completion of our clinical development programs. We currently have product liability insurance, but we may not be able to maintain such insurance on acceptable terms. However, even if we maintain or obtain other product liability insurance, our insurance may not provide adequate coverage against potential liabilities. As a result, we may be unable to obtain or maintain insurance coverage at a reasonable cost to protect against losses that could harm our business and financial condition. If any claims are brought against us, and we are not successful in defending ourselves, those claims could result in damage awards against us, which could materially adversely affect our business and financial condition. Whether or not we are successful in defending against such claims, we could incur substantial costs, including legal fees, and divert the attention of management in defending ourselves against any of these claims.

***We are increasingly dependent on information technology systems to operate our business and a cyber-attack or other breach of our systems, or those of third parties on whom we may rely, could subject us to liability or interrupt the operation of our business.***

We are increasingly dependent on information technology systems to operate our business. A breakdown, invasion, corruption, destruction or interruption of critical information technology systems by employees, others with authorized access to our systems or unauthorized persons could negatively impact operations. In the ordinary course of business, we collect, store and transmit confidential information and it is critical that we do so in a secure manner to maintain the confidentiality and integrity of such information. Additionally, we outsource certain elements of our information technology systems to third parties. As a result of this outsourcing, our third party vendors may or could have access to our confidential information making such systems vulnerable. Data breaches of our information technology systems, or those of our third party vendors, may pose a risk that sensitive data may be exposed to unauthorized persons or to the public. For example, the loss of clinical trial data from completed or ongoing clinical trials or preclinical studies could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. While we believe that we have taken appropriate security measures to protect our data and information technology systems, and have been informed by our third party vendors that they have as well, there can be no assurance that our efforts will prevent breakdowns or breaches in our systems, or those of our third party vendors, that could materially adversely affect our business and financial condition.

***Our ability to use 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 (the “Code”), if a corporation experiences 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 utilize its pre-change net operating loss carryforwards and other pre-change tax attributes (such as research tax credits) to offset its post-change taxable income or taxes may be limited. Our prior and potential future equity offerings and other changes in our stock ownership, some of which are outside of our control, may have resulted or could in the future result in an ownership change under Section 382 of the Code. If a limitation were to apply, utilization of a portion of our domestic net operating loss and tax credit carryforwards could be limited in future periods and a portion of the carryforwards could expire before being available to reduce future income tax liabilities.

On December 22, 2017, the U.S. government enacted legislation referred to as the Tax Cuts and Jobs Act (the “Tax Act”). Under the Tax Act, net operating losses generated prior to 2018 will continue to be governed by the net operating loss tax rules as they

existed prior to the adoption of the new Tax Act, which means that generally they will expire 20 years after they were generated if not used prior thereto. Accordingly, our net operating losses could expire unused and be unavailable to offset future income tax liabilities, if any. Under the Tax Act, net operating losses incurred in 2018 and in future years may be carried forward indefinitely, but the deductibility of such net operating losses is limited to 80% of current year taxable income. We continue to examine the impact that this provision of the Tax Act, among other provisions, may have on our business.

***Provisions of our charter documents or Delaware law could delay or prevent an acquisition of our company, even if the acquisition would be beneficial to our stockholders, and could make it more difficult to change management.***

Provisions of our certificate of incorporation and bylaws may discourage, delay or prevent a merger, acquisition or other change in control that stockholders might otherwise consider favorable, including transactions in which stockholders might otherwise receive a premium for their shares. In addition, these provisions may frustrate or prevent any attempt by our stockholders to replace or remove our current management by making it more difficult to replace or remove our board of directors. These provisions include:

- limitations on our stockholders' ability to call special meetings of stockholders;
- an advance notice requirement for stockholder proposals and nominations for members of our Board;
- the authority of our Board to determine the number of director seats on our Board;
- the authority of our Board to fill vacancies occurring on the Board;
- the authority of our Board to issue preferred stock with such terms as our Board may determine.

In addition, because we are governed by Delaware law, we are subject to the provisions of Section 203 of the Delaware General Corporation Law, which prohibits a publicly held Delaware corporation from engaging in a business combination with an interested stockholder, generally a person who, together with its affiliates, owns or within the last three years has owned 15% of our voting stock, for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner.

***We face competition from entities that have developed or may develop therapeutic candidates for our target disease indications, including companies developing novel treatments and technology platforms based on modalities and technology that may be similar to ours. If these companies develop technologies, including delivery technologies, or therapeutic candidates more rapidly than we do, or their technologies are more effective, our ability to develop and successfully commercialize therapeutic candidates may be adversely affected.***

While we believe that our DNAbilize<sup>®</sup> technology is the only delivery method of its type, the area of cancer treatment research is rapidly progressing, with many stakeholders, including for-profit and nonprofit institutions, conducting preclinical and clinical studies of various types of therapeutic products for the same or similar indications for use as our drug candidates. We expect that such work by others will continue, which may make it difficult for us to effectively recruit and enroll a satisfactory number of participants in clinical trials.

Our success will partially depend on our ability to develop therapeutics that are safer and more effective than competing therapeutics. Our commercial opportunity and success will be reduced or eliminated if competing therapeutics are safer, more effective, or less expensive than the therapeutics we develop, or if any are granted exclusive marketing approval by the FDA that precludes the marketing of our drug candidates for a period of time. If our lead drug candidates are approved for the indications we are currently pursuing, they will compete with a range of therapeutic treatments that are either in development or currently marketed. For example, the FDA has recently approved a number of drugs indicated for treatment of AML, some of which may have target patient populations similar to that of our drug candidates.

Many of our competitors may have significantly greater financial, technical, manufacturing, marketing, sales and supply resources or experience than we do. If we successfully obtain FDA approval for any drug candidate, we will face competition based on many different factors, including the safety and effectiveness of our products, the ease with which our products can be administered, the

timing and scope of regulatory approvals (if we are able to obtain any) for these drug candidates, the availability and cost of manufacturing, marketing and sales capabilities, price, reimbursement coverage and patent position. Competing therapeutics could present superior treatment alternatives, including by being more effective, safer, less expensive or marketed and sold more effectively than any therapeutics we may develop. Competitive alternatives may make any drugs that we develop obsolete or noncompetitive before we recover the expense of developing and commercializing our drug candidates, if we are able to obtain regulatory approval to commercialize such drug candidates.

***We may be subject, directly or indirectly, to certain U.S. federal and state healthcare laws and regulations, such as anti-kickback, false claims laws, physician payment transparency laws or similar fraud and abuse laws, which could expose us to potential criminal sanctions, civil penalties, contractual damages, reputational harm and diminished profits and future earnings.***

Healthcare providers, physicians and others will play a primary role in the recommendation, ordering and utilization of any products for which we obtain regulatory approval. If we obtain FDA approval for any of our products and begin commercializing those products in the U.S., our operations may be subject to various federal and state fraud and abuse laws, including, without limitation, the federal Anti-Kickback Statute, the federal False Claims Act, and physician payment transparency laws and regulations. These laws may impact, among other things, our potential sales, marketing and education programs and our relationships with physicians, patients, and other persons or entities in a position to refer, use, or recommend our future products. The laws that may affect our ability to operate could include, but are not limited to:

- the federal Anti-Kickback Statute, which prohibits, among other things, knowingly and willfully soliciting, receiving, offering or paying any remuneration (including any kickback, bribe, or rebate), directly or indirectly, overtly or covertly, in cash or in kind, to induce, or in return for, either the referral of an individual, or the purchase, lease, order or recommendation of any good, facility, item or service for which payment may be made, in whole or in part, under a federal healthcare program, such as the Medicare and Medicaid programs;
- federal civil and criminal false claims laws and civil monetary penalty laws, including the False Claims Act, which may be pursued through civil whistleblower or qui tam actions, impose criminal and civil penalties against individuals or entities for knowingly presenting, or causing to be presented, to the federal government, claims for payment or approval from Medicare, Medicaid or other third-party payors that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government;
- federal criminal statutes under the Health Insurance Portability and Accountability Act of 1996, which prohibit knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program or obtain, by means of false or fraudulent pretenses, representations, or promises, any of the money or property owned by, or under the custody or control of, any healthcare benefit program, and knowingly and willfully falsifying, concealing or covering up by any trick or device a material fact or making any materially false statements in connection with the delivery of, or payment for, healthcare benefits, items or services relating to healthcare matters;
- the federal transparency requirements under The Patient Protection and Affordable Care Act and the Health Care and Education Reconciliation Act (known collectively as the “Affordable Care Act”), including the provision commonly referred to as the Physician Payments Sunshine Act, which requires manufacturers of drugs, biologics, devices and medical supplies for which payment is available under Medicare, Medicaid or the Children’s Health Insurance Program to report annually to the Centers for Medicare and Medicaid Services information related to payments or other transfers of value made to physicians and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members; and
- State law equivalents of each of the healthcare laws described above, some of which may be broader in scope and apply regardless of the type of payor, such as state anti-kickback statutes and false claims acts, and state pricing, marketing, and transparency statutes that require us to adopt compliance programs, report pricing information, or disclose payments or other transfers of value to physicians or other covered recipients.

Because of the breadth of these laws and the narrowness of the statutory exceptions and safe harbors available, it is possible that some of our business activities could be subject to challenge under one or more of such laws once our products are commercialized. In addition, healthcare reform legislation has strengthened these laws and additional laws or requirements may be implemented in the

future. For example, the Affordable Care Act, among other things, amended the intent requirement of the federal Anti-Kickback and criminal healthcare fraud statutes. As a result of such amendment, a person or entity no longer needs to have actual knowledge of these statutes or specific intent to violate them in order to have committed a violation. Moreover, the Affordable Care Act 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 False Claims Act.

Efforts to ensure that our business arrangements comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that our existing or future business practices do not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. Any such actions instituted against us could have a significant adverse impact on our business, including the imposition of civil, criminal and administrative penalties, damages, disgorgement, monetary fines, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, contractual damages, reputational harm, diminished profits and future earnings, and curtailment of our operations, any of which could adversely affect our ability to operate our business and our results of operations. Even if we are successful in defending against such actions, we may nonetheless be subject to substantial costs, reputational harm and adverse effects on our ability to operate our business.

If any of our employees, agents, or the physicians or other providers or entities with whom we expect to do business are found to have violated applicable laws, we may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs, or, if we are not subject to such actions, we may suffer reputational harm for conducting business with persons or entities found, or accused of being, in violation of such laws. Any such events could adversely affect our ability to operate our business and our results of operations.

***Inadequate funding for the FDA, the SEC and other government agencies, or a work slowdown or stoppage at those agencies as part of a broader federal government shutdown, could hinder their ability to hire and retain key leadership and other personnel, prevent new products and services from being developed or commercialized in a timely manner, or otherwise prevent those agencies from performing normal business functions on which the operation of our business may rely, which could negatively impact our business.***

The ability of the FDA to review and approve new products can be affected by a variety of factors, including government budget and funding levels, ability to hire and retain key personnel and accept the payment of user fees, and statutory, regulatory and policy changes. Average review times at the agency have fluctuated in recent years as a result. In addition, government funding of the SEC and other government agencies on which our operations may rely, including those that fund research and development activities, is subject to the political process, which is inherently fluid and unpredictable.

Disruptions at the FDA and other agencies may also slow the time necessary for new drugs to be reviewed and/or approved by necessary government agencies, which could adversely affect our business. For example, in recent years, the U.S. government has shut down several times and certain regulatory agencies, such as the FDA and the SEC, have had to furlough employees and stop critical activities. If a prolonged government shutdown or a series of shutdowns occurs, it could significantly affect the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business. Further, future government shutdowns could impact our ability to gain access to the public markets and obtain necessary capital in order to properly capitalize and continue our operations, which could have a material adverse effect on our business and financial condition.

***Our business and operations have been affected by and could be materially and adversely affected in the future by the effects of health epidemics and pandemics, including the evolving and ongoing effects of the COVID-19 pandemic.***

Our business and operations could be adversely affected by health epidemics and pandemics, including the ongoing COVID-19 pandemic, which has presented a substantial public health and economic challenge around the world and has affected, and continues to affect, our employees, clinical trial participants, communities, and business operations, as well as the U.S. and global economy and financial markets. To date, COVID 19's impact on our operations has been limited to the inability to travel to clinical trial sites, clinical trial sites not allowing nonessential personnel on site for the purpose of monitoring activity, delays in the manufacture of our drug requirements by contracted third-party manufacturers and limitations on patient recruiting and enrollment. There can be no guarantee we will not experience other impacts, such as being forced to further delay or pause enrollment, experiencing potential interruptions to our supply chain, facing difficulties or additional costs in enrolling patients in future clinical trials or being able to achieve full enrollment of our studies within the timeframes we anticipate, or at all.

The negative impacts caused by the COVID-19 pandemic have been and may continue to be extensive in many aspects of society and could continue to result in significant disruptions to the global economy, as well as businesses and capital markets around the world. The full extent to which the COVID-19 pandemic could ultimately impact our business, preclinical studies, clinical trials and financial results will depend on future developments, which are highly uncertain and cannot be accurately predicted, including the emergence of new variants and subvariants of the virus that causes COVID-19.

Other public health crises, including any future outbreaks of contagious diseases, could have additional material adverse effects on our business. The extent to which any future public health crises may impact our business, results of operations, and financial condition depends on many factors which are highly uncertain and are difficult to predict. These factors include, but are not limited to, the duration and spread of any outbreak, its severity, the actions to contain or address the impact of the outbreak, the timing, distribution, and efficacy of vaccines and other treatments, United States and foreign government actions to respond to possible reductions in global economic activity, and how quickly and to what extent normal economic and operating conditions can resume.

***Unstable market and economic conditions may have serious adverse effects on our ability to raise funds, which may cause delays, restructuring or cessation of our operations.***

From time to time, global and domestic credit and financial markets have experienced extreme disruptions, including severely diminished liquidity and credit availability, declines in economic growth, increases in unemployment rates, and uncertainty about economic stability. If the equity and credit markets deteriorate, it may make a debt or equity financing more difficult to complete, costlier, and more dilutive. Failure to secure any necessary financing in a timely manner and on favorable terms will have a material adverse effect on our business strategy and financial condition, and could require us to liquidate and dissolve the Company.

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

***We must complete extensive clinical trials to demonstrate the safety and efficacy of our drug candidates. If we are unable to demonstrate the safety and efficacy of our drug candidates, we will not be successful.***

To date, none of our drug candidates have been approved for sale in the U.S. or any foreign country. While antisense therapeutics have been in development for over 20 years, only a limited number of antisense drugs have been successfully developed to date. Further, the development of liposomal antisense therapeutics, which comprise our drug therapeutics technology, has faced many challenges and generally remains unproven in the treatment of cancers. The success of our business depends primarily on our ability to develop and commercialize our drug candidates successfully. Our drug candidates must satisfy rigorous standards of safety and efficacy before they can be approved for sale. To satisfy these standards, we must engage in expensive and lengthy testing of our drug candidates.

We may not be able to obtain authority from the FDA or other equivalent foreign regulatory agencies to move on to further efficacy segments of our ongoing clinical trials or commence and complete any other clinical trials for any of our drug candidates. Positive results in preclinical studies of a drug candidate may not be predictive of similar results in human clinical trials, and promising results from early clinical trials of a drug candidate may not be replicated in later clinical trials. A number of companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late-stage clinical trials even after achieving promising results in early-stage development. Accordingly, the results from the preclinical tests or clinical trials for our drug candidates may not be predictive of the results we may obtain in later stage trials. The failure of clinical trials to demonstrate safety and efficacy of one or more of our drug candidates will have a material adverse effect on our business and financial condition.

***Delays in the commencement of clinical trials of our drug candidates could result in increased costs to us and delay our ability to generate revenues.***

Our drug candidates will require continued extensive clinical trials prior to the submission of a regulatory application for commercial sales. Because of the nature of clinical trials, we do not know whether future planned clinical trials will begin on time, if at all. Delays in the commencement of clinical trials could significantly increase our drug development costs and delay any commercialization of our drug candidates. In addition, many of the factors that may cause, or lead to, a delay in the commencement of clinical trials may also ultimately lead to denial of regulatory approval of a drug candidate.

The commencement of clinical trials can be delayed for a variety of reasons, including delays in:

- demonstrating sufficient safety and efficacy in past clinical trials to obtain regulatory approval to commence a further clinical trial;
- convincing the FDA that we have selected valid endpoints for use in proposed clinical trials;
- reaching agreements on acceptable terms with prospective contract manufacturers for manufacturing sufficient quantities of our drug candidates; and
- obtaining institutional review board approval to conduct a clinical trial at a prospective site.

In addition, the commencement of clinical trials may be delayed due to insufficient patient enrollment, which is a function of many factors, including the size of the patient population, the nature of the protocol, the proximity of patients to clinical sites, the availability of effective treatments for the relevant disease and the eligibility criteria for the clinical trial.

***Delays in the completion of, or the termination of, clinical trials of our drug candidates could result in increased costs to us and could delay or prevent us from generating revenues.***

Once a clinical trial has begun, it may be delayed, suspended or terminated by us or the FDA or other regulatory authorities due to a number of factors, including:

- regulators or institutional review boards may not authorize us to commence or conduct a clinical trial at a prospective trial site;
- our preclinical tests or clinical trials may produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional preclinical testing or clinical trials or we may abandon projects that we expect may not be promising;
- we might have to suspend or terminate our clinical trials if the participating patients are being exposed to unacceptable health risks;
- regulators or institutional review boards may require that we hold, suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements;
- the cost of our clinical trials may be greater than we currently anticipate and we may lack adequate funding to continue the clinical trial;
- the timing of our clinical trials may be longer than we currently anticipate;
- our third-party contractors may fail to comply with regulatory requirements or meet their contractual obligations to us in a timely manner (including delays or inability to manufacture or obtain sufficient quantities of materials for use in clinical trials);
- inadequacy of or changes in our manufacturing process or compound formulation;
- slower than expected rates of patient recruitment and enrollment or lower than expected patient retention rates;
- the effects of our drug candidates may not be the desired effects or may include undesirable side effects or our drug candidates may have other unexpected characteristics;
- changes in applicable regulatory policies and regulations;

- delays in identifying and reaching agreement on acceptable terms with prospective clinical trial sites;
- uncertainty regarding proper dosing;
- failure of our clinical research organizations to comply with all regulatory and contractual requirements or otherwise fail to perform their services in a timely or acceptable manner;
- scheduling conflicts with participating clinicians and clinical institutions;
- failure to construct appropriate clinical trial protocols;
- insufficient data to support regulatory approval;
- inability or unwillingness of medical investigators to follow our clinical protocols; and
- the timing of discussions and meetings with the FDA or other regulatory authorities regarding the scope or design of our clinical trials.

Many of these factors that may lead to a delay, suspension or termination of clinical trials of our drug candidates may also ultimately lead to denial of regulatory approval of our drug candidates.

From time to time, we may publicly announce our expected timing of completing certain milestones relating to various scientific, clinical, regulatory, development and other objectives related to our business. For example, these milestones may include the commencement or completion of scientific studies or clinical trials or the submission or approval of regulatory filings. Our estimates for completion of these milestones are based on a variety of assumptions, some of which may be out of our control.

If we experience delays in the completion of, or termination of, clinical trials of any drug candidates in the future, or if we do not meet our milestones within the estimated timeframes that we have publicly announced, our business, financial condition and the commercial prospects for our drug candidates could be materially adversely affected, and our ability to generate product revenues could be delayed or eliminated. In addition, our stock price could decline.

***If we are unable to obtain U.S. and/or foreign regulatory approval, we will be unable to commercialize our drug candidates.***

Our drug candidates are subject to extensive governmental regulations relating to, among other things, research, testing, development, manufacturing, safety, efficacy, record keeping, labeling, marketing and distribution of drugs. Rigorous preclinical testing and clinical trials and an extensive regulatory approval process are required in the U.S. and in many foreign jurisdictions prior to the commercial sale of our drug candidates. Satisfaction of these and other regulatory requirements is costly, time consuming, uncertain and subject to unanticipated delays. It is possible that none of the drug candidates we are developing will obtain marketing approval. In connection with the clinical trials for our drug candidates, we face risks that:

- the drug candidate may not prove to be sufficiently efficacious;
- the drug candidate may not prove to be safe;
- the drug candidate may not be readily co-administered or combined with other drugs or drug candidates;
- the results may not confirm the positive results from earlier preclinical studies or clinical trials;
- the results may not meet the level of statistical significance required by the FDA or other regulatory agencies; and
- the FDA or other regulatory agencies may require us to carry out additional studies.



We have limited experience in conducting and managing later stage clinical trials necessary to obtain regulatory approvals, including approval by the FDA. However, this risk would be mitigated in the event the Company is successful entering into a co-development agreement with a pharma partner for late stage clinical development. The time required to complete clinical trials and for the FDA and other countries' regulatory review processes is uncertain and typically takes many years. Our analysis of data obtained from preclinical and clinical trials is subject to confirmation and interpretation by regulatory authorities, which could delay, limit or prevent regulatory approval. We may also encounter unanticipated delays or increased costs due to government regulation from future legislation or administrative action or changes in FDA policy during the period of product development, clinical trials, and FDA regulatory review.

Any regulatory approval to market a product may be subject to limitations on the indicated uses for which we may market the product and affect reimbursement by third-party payors. These limitations may limit the size of the market for the product. We may also become subject to numerous foreign regulatory requirements governing the conduct of clinical trials, manufacturing and marketing authorization, pricing and third-party reimbursement. The foreign regulatory approval process includes all of the risks associated with FDA approval described above as well as risks attributable to the satisfaction of foreign regulations. Approval by the FDA does not ensure approval by regulatory authorities outside the U.S. Foreign jurisdictions may have different approval procedures than those required by the FDA and may impose additional testing requirements for our drug candidates.

***In addition to regulations in the U.S., we may be subject to a variety of regulations in other jurisdictions governing, among other things, clinical trials and any commercial sales and distribution of our products, if approved.***

Whether or not we obtain FDA approval for a drug candidate, we must obtain the requisite approvals from regulatory authorities in non-U.S. countries prior to the commencement of clinical trials or marketing of our products in those countries. Certain countries outside of the U.S. have a process that requires the submission of a clinical trial application, much like an IND, prior to the commencement of human clinical trials. In the E.U., for example, a CTA must be submitted to the competent national health authority and to independent ethics committees in each country in which a company intends to conduct clinical trials. Once the CTA is approved in accordance with a country's requirements, clinical trial development may proceed in that country.

The requirements and process governing the conduct of clinical trials, product licensing, pricing and reimbursement vary from country to country. In all cases, the clinical trials must be conducted in accordance with GCP and other applicable regulatory requirements.

To obtain regulatory approval of an investigational drug under E.U. regulatory systems, we must submit a marketing authorization application. This application is similar to the NDA in the U.S., with the exception of, among other things, country-specific document requirements. Drugs can be authorized in the E.U. by using (i) the centralized authorization procedure, (ii) the mutual recognition procedure, (iii) the decentralized procedure or (iv) national authorization procedures.

The EMA implemented the centralized procedure for the approval of human drugs to facilitate marketing authorizations that are valid throughout the E.U. This procedure results in a single marketing authorization granted by the European Commission that is valid across the E.U., as well as in Iceland, Liechtenstein and Norway. The centralized procedure is compulsory for certain human drugs including those that are: (i) derived from biotechnology processes, such as genetic engineering, or (ii) contain a new active substance indicated for the treatment of certain diseases.

***Changes in existing laws and regulations affecting the healthcare industry could increase our costs and otherwise adversely affect our business.***

Our research and development activities, preclinical studies and clinical trials, and the manufacturing, marketing and labeling of any products we may develop, are subject to extensive regulation by the FDA and other regulatory authorities in the U.S. and other countries. Changes in existing federal, state and foreign laws and agency regulations may be established that could prevent or delay regulatory approval of our drug candidates or materially increase our costs, including:

- changes in the FDA and foreign regulatory processes for new therapeutics that may delay or prevent the approval of any of our drug candidates;

- new laws, regulations, or judicial decisions related to healthcare availability or the payment for healthcare products and services, including prescription drugs, that would make it more difficult for us to market and sell products once they are approved by the FDA or foreign regulatory agencies;
- changes in FDA and foreign regulations that may require additional safety monitoring prior to or after the introduction of new products to market, which could materially increase our costs of doing business; and
- changes in FDA and foreign current cGMP that would make it more difficult for us to manufacture our drug candidates in accordance with cGMP.

Delays in obtaining or preventing our obtaining regulatory approval of our drug candidates could materially adversely affect our ability to commercialize any of our drug candidates and our ability to receive product revenues or to receive milestone payments or royalties from any product rights we might license to others.

***We rely on third parties to conduct clinical trials for our drug candidates, and their failure to timely and properly perform their obligations may result in costs and delays that prevent us from obtaining regulatory approval or successfully commercializing our drug candidates.***

We rely on independent contractors, including clinical research organizations, in certain areas that are particularly relevant to our research and drug development plans, such as for data management for the conduct of clinical trials. The competition for these relationships is intense, and we may not be able to maintain our relationships with them on acceptable terms. Independent contractors generally may terminate their engagements at any time, subject to notice. As a result, we can control their activities only within certain limits, and they will devote only a certain amount of their time conducting research on and trials of our drug candidates and assisting in developing them. If they do not successfully carry out their duties under their agreements with us, fail to inform us if these trials fail to comply with clinical trial protocols or fail to meet expected deadlines, our clinical trials may need to be extended, delayed or terminated. We may not be able to enter into replacement arrangements without undue delays or excessive expenditures. If there are delays in testing or regulatory approvals as a result of the failure to perform by our independent contractors or other outside parties, our drug candidate development costs will increase and we may not be able to attain regulatory approval for or successfully commercialize our drug candidates.

In addition, we have no control over the financial health of our independent contractors. Several of our independent contractors are in possession of valuable and sensitive information relating to the safety and efficacy of our drug candidates, and several others provide services to a significant percentage of the patients enrolled in our clinical trials in which such independent contractors participate. Should one or more of these independent contractors become insolvent, or otherwise are not able to continue to provide services to us, the clinical trial in which such contractor participates could become significantly delayed and we may be materially adversely affected as a result of the delays and additional expenses associated with such event.

***We may not be able to obtain or maintain orphan drug exclusivity for our product candidates.***

Prexigebersen has received orphan drug designations for the treatment of AML in the U.S. Orphan designation is available to drugs intended to treat, diagnose or prevent a rare disease or condition that affects fewer than 200,000 people in the U.S. at the time of application for orphan designation. Orphan drug designation must be requested before submitting an application for marketing authorization. Orphan designation qualifies the sponsor of the product for a tax credit and marketing incentives. The first sponsor to receive FDA marketing approval for a drug with an orphan designation is entitled to a seven-year exclusive marketing period in the U.S. for that product for that indication and, typically, a waiver of the prescription drug user fee for its marketing application. However, a drug that the FDA considers to be clinically superior to, or different from, the approved orphan drug, even though for the same indication, may also obtain approval in the U.S. during the seven-year exclusive marketing period. Orphan drug exclusive marketing rights may also be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug.

In October 2016, prexigebersen also received orphan drug designation for AML in the E.U. from the EMA. To receive orphan drug designation from the EMA, a therapy must be intended for the treatment of a life-threatening or chronically debilitating rare condition with a prevalence of less than five in 10,000 in the E.U. Orphan drug designation provides incentives designed to facilitate

development, including fee reductions for protocol assistance, scientific advice and importantly, may provide up to ten years of market exclusivity in the E.U. following product approval.

There is no guarantee that any of our other drug candidates will receive orphan drug designation or that, even if such drug candidate is granted such status, the drug candidate's clinical development and regulatory approval process will not be delayed or will be successful.

### **Risks Related to Manufacturing Our Drug Candidates**

*We rely on third parties for manufacturing of our clinical drug supplies; our dependence on these manufacturers may impair the development of our drug candidates.*

We have no ability to internally manufacture the drug candidates that we need to conduct our clinical trials. For the foreseeable future, we expect to continue to rely on third-party manufacturers and other third parties to produce, package and store sufficient quantities of our drug candidates and any future drug candidates for use in our clinical trials. We have entered into agreements with third-party manufacturers for the manufacture of our drug requirements, including agreements for the manufacture of prexigebersen for use in our Phase 2 clinical trial in AML, as well as agreements for the manufacture of BP1002, BP1003 and BP1001-A for use in our Phase 1 clinical trials. To date, we have made steady progress with our current third-party manufacturers, overcoming challenges associated with scaling up manufacturing to develop their capabilities to supply us with our necessary quantities of drug supplies for our clinical trials. However, we may face various risks and uncertainties in connection with our reliance on third-party manufacturers, including:

- reliance on third-party manufacturers for regulatory compliance and quality assurance;
- the possibility of breach of the manufacturing agreement by the third-party manufacturer because of factors beyond our control;
- the possibility of termination or nonrenewal of our manufacturing agreement by the third-party manufacturer at a time that is costly or inconvenient for us;
- the potential that third-party manufacturers will develop know-how owned by such third-party manufacturer in connection with the production of our drug candidates that is necessary for the manufacture of our drug candidates; and
- reliance on third-party manufacturers to assist us in preventing inadvertent disclosure or theft of our proprietary knowledge.

Our drug candidates are complicated and expensive to manufacture. If our third-party manufacturers fail to deliver our drug candidates for clinical use on a timely basis, with sufficient quality, and at commercially reasonable prices, we may be required to delay or suspend clinical trials or otherwise discontinue development of our drug candidates. While we may be able to identify replacement third-party manufacturers or develop our own manufacturing capabilities for these drug candidates, this process would likely cause a delay in the availability of our drug candidates and an increase in costs. In addition, third-party manufacturers may have a limited number of facilities in which our drug candidates can be manufactured, and any interruption of the operation of those facilities due to events such as equipment malfunction or failure or damage to the facility by natural disasters could result in the cancellation of shipments, loss of product in the manufacturing process or a shortfall in available drug candidates.

We may in the future elect to manufacture certain of our drug candidates in our own manufacturing facilities. If we do so, we will require substantial additional funds and need to recruit qualified personnel in order to build or lease and operate any manufacturing facilities.

***There are underlying risks associated with the manufacture of our drug candidates, which have never been manufactured in large scale. Furthermore, we anticipate continued reliance on third-party manufacturers if we are successful in obtaining marketing approval from the FDA or other regulatory agencies for any of our drug candidates.***

To date, our drug candidates have been manufactured in relatively small quantities for preclinical testing and clinical trials by third-party manufacturers, and have never been manufactured in large scale. Additionally, as in the development of any new compound, there are underlying risks associated with their manufacture. These risks include, but are not limited to, cost, process scale-up, process reproducibility, construction of a suitable process plant, timely availability of raw materials, as well as regulatory issues associated with the manufacture of an active pharmaceutical agent. Any of these risks may prevent us from successfully developing our drug candidates. Our failure, or the failure of our third-party manufacturers to achieve and maintain these high manufacturing standards, including the incidence of manufacturing errors and reliable product packaging for diverse environmental conditions, could result in patient injury or death, product recalls or withdrawals, delays or failures in product testing or delivery, cost overruns or other problems that could materially adversely affect our business and financial condition.

If the FDA or other regulatory agencies approve any of our drug candidates for commercial sale, we expect that we would continue to rely, at least initially, on third-party manufacturers to produce commercial quantities of such approved drug candidates. These manufacturers may not be able to successfully increase the manufacturing capacity for any of our approved drug candidates in a timely or economic manner, or at all. Significant scale-up of manufacturing may require additional validation studies, which the FDA or other regulatory authorities must review and approve. If our third-party manufacturers are unable to successfully increase the manufacturing capacity for a drug candidate, or we are unable to establish our own manufacturing capabilities, the commercial launch of any approved products may be delayed or there may be a shortage in supply.

***Identification of previously unknown problems with respect to a drug candidate, manufacturer or facility may result in restrictions on the drug candidate, manufacturer or facility.***

The FDA stringently applies regulatory standards for the manufacturing of our drug candidates. Identification of previously unknown problems with respect to a drug candidate, manufacturer or facility may result in restrictions on the drug candidate, manufacturer or facility, including warning letters, suspensions of regulatory approvals, operating restrictions, delays in obtaining new product approvals, withdrawal of the product from the market, product recalls, fines, injunctions and criminal prosecution. Any of the foregoing could have a material adverse effect on our business and financial condition.

***We may experience delays in the development of our drug candidates if the third-party manufacturers of our drug candidates cannot meet FDA requirements relating to current Good Manufacturing Practices.***

Our third-party manufacturers are required to produce our drug candidates under FDA cGMP in order to meet acceptable standards for our preclinical testing and clinical trials. If such standards change, the ability of third-party manufacturers to produce our drug candidates on the schedule we require for our preclinical tests and clinical trials may be affected. In addition, third-party manufacturers may not perform their obligations under their agreements with us or may discontinue their business before the time required by us to gain approval for or commercialize our drug candidates. Any difficulties or delays in the manufacturing and supply of our drug candidates could increase our costs or cause us to lose revenue or postpone or cancel clinical trials.

The FDA also requires that we demonstrate structural and functional comparability of a drug candidate produced by different third-party manufacturers. Because we may use multiple sources to manufacture our drug candidates, we may need to conduct comparability studies to assess whether manufacturing changes have affected the safety, identity, purity or potency of any drug candidate compared to the drug candidate produced by another manufacturer. If we are unable to demonstrate comparability, the FDA could require us to conduct additional clinical trials, which would be expensive and significantly delay commercialization of our drug candidates.

## Risks Related to Commercialization

***If we are unable to establish sales and marketing capabilities or enter into agreements with third parties to market and sell our drug candidates, we may not generate product revenue.***

We have no commercial products, and we do not currently have an organization for the sales and marketing of pharmaceutical products. In order to successfully commercialize any drug candidates that may be approved in the future by the FDA or comparable foreign regulatory authorities, we must build our sales and marketing capabilities or make arrangements with third parties to perform these services. For certain drug candidates in selected indications where we believe that an approved product could be commercialized by a specialty sales force that calls on a limited but focused group of physicians, we may commercialize these products ourselves. However, in therapeutic indications that require a large sales force selling to a large and diverse prescribing population, we may enter into arrangements with other companies for commercialization. If we are unable to establish adequate sales, marketing and distribution capabilities, whether independently or with third parties, we may not be able to generate product revenue and may not become profitable.

***If our future drugs do not achieve market acceptance, we may be unable to generate significant revenue, if any.***

Even if our drug candidates obtain regulatory approval, they may not gain market acceptance among physicians, health care payors, patients and the medical community. Factors that we believe could materially affect market acceptance of our drug candidates include:

- the timing of market introduction of competitive drugs;
- the demonstrated clinical safety and efficacy of our drug candidates compared to other drugs and other drug candidates;
- the suitability of our drug candidates to be co-administered or combined with other drugs or drug candidates;
- the durability of our drug candidates in their ability to prevent the emergence of drug-resistant viral mutants;
- the convenience and ease of administration of our drug candidates;
- the existence, prevalence and severity of adverse side effects;
- other potential advantages of alternative treatment methods;
- the effectiveness of marketing and distribution support;
- the cost-effectiveness of our drug candidates; and
- the availability of reimbursement from managed care plans, the government and other third-party payors.

If our approved drug candidates fail to achieve market acceptance, we would not be able to generate significant revenue. In addition, even if our approved drug candidates achieve market acceptance, we may not be able to maintain that market acceptance over time if:

- new products or technologies are introduced that are more favorably received than our products, are more cost effective or render our products obsolete;
- unforeseen complications arise with respect to the use of our products; or
- sufficient third-party insurance coverage or reimbursement does not remain available.

***If third-party payors do not adequately reimburse patients for any of our drug candidates that are approved for marketing, they might not be purchased or used, and our revenues and profits will not develop or increase.***

Our revenues and profits will depend significantly upon the availability of adequate reimbursement for the use of any approved drug candidates from governmental and other third-party payors, both in the U.S. and in foreign markets. Reimbursement by a third party may depend upon a number of factors, including the third-party payor's determination that use of an approved drug candidate is:

- a covered benefit under its health plan;
- safe, effective and medically necessary;
- appropriate for the specific patient;
- cost effective; and
- neither experimental nor investigational.

The regulations that govern marketing approvals, pricing and reimbursement for new therapeutic and diagnostic products vary widely from country to country. Some countries require approval of the sale price of a drug candidate before it can be marketed. In many countries, the pricing review period begins after marketing or product 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 might obtain regulatory approval for a drug candidate in a particular country, but then be subject to price regulations that delay our commercial launch of the approved drug and negatively impact the revenues we are able to generate from the sale of the approved 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 regulatory approval.

Obtaining reimbursement approval for an approved drug from each third-party and government payor is a time-consuming and costly process that could require us to provide supporting scientific, clinical and cost-effectiveness data for the use of any approved drug candidates to each payor. We may not be able to provide data sufficient to gain acceptance with respect to reimbursement. There also exists substantial uncertainty concerning third-party reimbursement for the use of any approved drug incorporating new technology, and even if determined eligible, coverage may be more limited than the purposes for which the drug is approved by the FDA. Moreover, eligibility for coverage does not imply that any approved drug will be reimbursed in all cases or at a rate that allows us to make a profit or even cover our costs. Interim payments for new products, if applicable, may also be insufficient to cover our costs and may not be made permanent. Reimbursement rates may vary according to the use of the approved drugs and the clinical setting in which it is used, may be based on payments allowed for lower-cost products or combinations of products that are already reimbursed, may be incorporated into existing payments for other products or services, and may reflect budgetary constraints and/or imperfections in Medicare or Medicaid data used to calculate these rates. Net prices for products may be reduced by mandatory discounts or rebates required by government health care programs or by any future relaxation of laws that restrict imports of certain medical products from countries where they may be sold at lower prices than in the U.S.

In the U.S., at both the federal and state levels, the government regularly proposes legislation to reform health care and its cost, and such proposals have received increasing political attention. While health care reform may increase the number of patients who have insurance coverage for the use of any approved drug, it may also include changes that adversely affect reimbursement for approved drugs. In addition, there has been, and we expect that there will continue to be, federal and state proposals to constrain expenditures for medical products and services, which may affect payments for any of our drug candidates that obtain approval. The Centers for Medicare and Medicaid Services frequently change product descriptors, coverage policies, product and service codes, payment methodologies and reimbursement values. Third-party payors often follow Medicare coverage policy and payment limitations in setting their own reimbursement rates and may have sufficient market power to demand significant price reductions. As a result of actions by these third-party payors, the health care industry is experiencing a trend toward containing or reducing costs through various means, including lowering reimbursement rates, limiting therapeutic class coverage and negotiating reduced payment schedules with service providers for drug products.

Our inability to promptly obtain coverage and profitable reimbursement rates from government-funded and private payors for any of our drug candidates that obtain approval could have a material adverse effect on our business and financial condition.

## Risks Related to Intellectual Property

*If our patent position does not adequately protect our drug candidates, others could compete against us more directly, which would harm our business.*

Our patent portfolio currently includes seven issued patents in the U.S. and sixty-one issued patents in foreign jurisdictions. We have three additional pending patent applications in the U.S. and five additional allowed patent application in a foreign jurisdiction. Further, we have pending patent applications in key foreign jurisdictions across our six families of applications. Our success depends in large part on our ability to obtain and maintain patent protection both in the U.S. and in other countries for our drug candidates. Our ability to protect our drug candidates from unauthorized or infringing use by third parties depends in substantial part on our ability to obtain and maintain valid and enforceable patents. Due to evolving legal standards relating to the patentability, validity and enforceability of patents covering pharmaceutical inventions and the scope of claims made under these patents, our ability to maintain, obtain and enforce patents is uncertain and involves complex legal and factual questions. Accordingly, rights under any issued patents may not provide us with sufficient protection for our drug candidates or provide sufficient protection to afford us a commercial advantage against competitive products or processes. We cannot guarantee that any patents will issue from any pending or future patent applications owned by or licensed to us.

Even if patents have issued or will issue, we cannot guarantee that the claims of these patents are or will be valid or enforceable or will provide us with any significant protection against competitive products or otherwise be commercially valuable to us. Patent applications in the U.S. are maintained in confidence for up to 18 months after their filing. In some cases, however, patent applications remain confidential in the USPTO for the entire time prior to issuance as a U.S. patent. Similarly, publication of discoveries in the scientific or patent literature often lags behind actual discoveries. Consequently, we cannot be certain that we or our licensors were the first to invent, or the first to file patent applications on, our drug candidates. The costs of these proceedings could be substantial and it is possible that our efforts would be unsuccessful, resulting in a loss of our U.S. patent position. Furthermore, we may not have identified all U.S. and foreign patents or published applications that affect our business either by blocking our ability to commercialize our drugs or by covering similar technologies that affect our drug market.

The claims of the issued patents that are licensed to us, and the claims of any patents which may issue in the future and be owned by or licensed to us, may not confer on us significant commercial protection against competing products. Additionally, our patents may be challenged by third parties, resulting in the patent being deemed invalid, unenforceable or narrowed in scope, or the third party may circumvent any such issued patents. Our patents might not contain claims that are sufficiently broad to prevent others from utilizing our technologies. Consequently, our competitors may independently develop competing products that do not infringe our patents or other intellectual property. To the extent a competitor can develop similar products using a different molecule, our patents may not prevent others from directly competing with us.

The laws of some foreign jurisdictions do not protect intellectual property rights to the same extent as in the U.S. and many companies have encountered significant difficulties in protecting and defending such rights in foreign jurisdictions. If we encounter such difficulties in protecting or are otherwise precluded from effectively protecting our intellectual property rights in foreign jurisdictions, our business prospects could be substantially harmed.

Because of the extensive time required for development, testing and regulatory review of a drug candidate, it is possible that, before any of our drug candidates can be commercialized, any related patent may expire or remain in force for only a short period following commercialization of our drug candidates, thereby reducing any advantages of the patent. To the extent our drug candidates based on that technology are not commercialized significantly ahead of the date of any applicable patent, or to the extent we have no other patent protection on such drug candidates, those drug candidates would not be protected by patents, and we would then rely solely on other forms of exclusivity, such as regulatory exclusivity provided by the FDCA or trade secret protection.

The Leahy-Smith America Invents Act (the “America Invents Act”) was signed into law in September 2011, and many of the substantive changes became effective in March 2013. The America Invents Act reforms U.S. patent law in part by changing the standard for patent approval from a “first to invent” standard to a “first to file” standard and developing a post-grant review system. This legislation changes U.S. patent law in a way that may weaken our ability to obtain patent protection in the U.S. for those applications filed after March 2013.

***If any third-party owners of intellectual property we may license in the future do not properly maintain or enforce the patents underlying such licenses, our competitive position and business prospects will be harmed.***

We may enter into licenses for third-party intellectual property in the future. Our success will depend in part on the ability of our licensors to obtain, maintain and enforce patent protection for their intellectual property, in particular, those patents to which we have secured exclusive rights. If applicable, our licensors may not successfully prosecute the patent applications to which we are licensed. Even if patents issue in respect of any such patent applications, our licensors may fail to maintain these patents, may determine not to pursue litigation against other companies that are infringing these patents, or may pursue such litigation less aggressively than we would. In addition, our licensors may terminate their agreements with us in the event we breach the applicable license agreement and fail to cure the breach within a specified period of time. Without protection for the intellectual property we license, other companies might be able to offer substantially identical products for sale, which could materially adversely affect our competitive business position, business prospects and financial condition.

Because our research and development of drug candidates incorporates compounds and other information that is the intellectual property of third parties, we depend on continued access to such intellectual property to conduct and complete our preclinical and clinical research and commercialize the drug candidates that result from this research. We expect that future licenses would impose, numerous obligations on us. For example, under our existing and future license agreements, we may be required to pay (i) annual maintenance fees until a drug candidate is sold for the first time, (ii) running royalties on net sales of drug candidates, (iii) minimum annual royalties after a drug candidate is sold for the first time, and (iv) one-time payments upon the achievement of specified milestones. We may also be required to reimburse patent costs incurred by the licensor, or we may be obligated to pay additional royalties, at specified rates, based on net sales of our drug candidates that incorporate the licensed intellectual property rights. We may also be obligated under some of these agreements to pay a percentage of any future sublicensing revenues that we may receive. Future license agreements may also include payment obligations such as milestone payments or minimum expenditures for research and development. We expect that any future licenses would contain reporting, insurance and indemnification requirements.

***If we infringe or are alleged to infringe intellectual property rights of third parties, our business could be harmed.***

Our research, development and commercialization activities, including any drug candidates resulting from these activities, may infringe or be claimed to infringe patents or other proprietary rights owned by third parties and to which we do not hold licenses or other rights. There may be applications that have been filed but not published that, if issued, could be asserted against us. If a patent infringement suit were brought against us, we could be forced to stop or delay research, development or manufacturing of drug candidate that is the subject of the suit. Further, if we are found to have infringed a third-party patent, we could be obligated to pay royalties and/or other payments to the third party related to our drug candidates, which may be substantial, or we could be enjoined from selling our drug candidates that obtain approval.

There has been substantial litigation and other proceedings regarding patent and other intellectual property rights in the pharmaceutical and biotechnology industries. In addition to infringement claims against us, we may become a party to other patent litigation and other proceedings, including interference proceedings declared by the USPTO and opposition proceedings in the European Patent Office, regarding intellectual property rights with respect to our drug candidates and technology. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our business and financial condition.

***Litigation regarding patents, intellectual property and other proprietary rights may be expensive and time consuming. If we are involved in such litigation, it could cause delays in bringing drug candidates to market and harm our ability to operate.***

Our success will depend in part on our ability to operate without infringing the proprietary rights of third parties. Although we are not currently aware of any litigation or other proceedings or third-party claims of intellectual property infringement related to our drug candidates, the pharmaceutical industry is characterized by extensive litigation regarding patents and other intellectual property rights. Other parties may obtain patents in the future and allege that the use of our technologies infringes these patent claims or that we are employing their proprietary technology without authorization. Likewise, third parties may challenge or infringe upon our existing or future patents. Proceedings involving our patents or patent applications or those of others could result in adverse decisions regarding:

- the patentability of our inventions relating to our drug candidates; and/or



- the enforceability, validity or scope of protection offered by our patents relating to our drug candidates.

Even if we are successful in these proceedings, we may incur substantial costs and divert management time and attention in pursuing these proceedings, which could have a material adverse effect on us. If we are unable to avoid infringing the patent rights of others, we may be required to seek a license, defend an infringement action or challenge the validity of the patents in court. Patent litigation is costly and time consuming. We may not have sufficient resources to bring these actions to a successful conclusion. In addition, if we do not obtain a license, develop or obtain non-infringing technology, fail to defend an infringement action successfully or have infringed patents declared invalid, we may:

- incur substantial monetary damages;
- encounter significant delays in bringing our drug candidates to market; and/or
- be precluded from participating in the manufacture, use or sale of our drug candidates or methods of treatment requiring licenses.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, during the course of this kind of litigation, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If investors perceive these results to be negative, the market price for our common stock could be significantly harmed.

***Confidentiality agreements with employees and others may not adequately prevent disclosure of trade secrets and other proprietary information and may not adequately protect our intellectual property.***

We rely on trade secrets to protect our technology, especially where we do not believe patent protection is appropriate or obtainable. However, trade secrets are difficult to protect. In order to protect our proprietary technology and processes, we also rely in part on confidentiality and intellectual property assignment agreements with our corporate partners, employees, consultants, outside scientific collaborators and sponsored researchers and other advisors. These agreements may not effectively prevent disclosure of confidential information nor result in the effective assignment to us of intellectual property, and may not provide an adequate remedy in the event of unauthorized disclosure of confidential information or other breaches of the agreements. In addition, others may independently discover our trade secrets and proprietary information, and in such case we could not assert any trade secret rights against such party. Enforcing a claim that a party illegally obtained and is using our trade secrets is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, courts outside the U.S. may be less willing to protect trade secrets. Costly and time-consuming litigation could be necessary to seek to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection could materially adversely affect our business and financial condition.

***We may be subject to claims that our employees and contractors have wrongfully used or disclosed alleged trade secrets of their former employers.***

As is common in the biotechnology and pharmaceutical industries, we employ individuals who were previously employed at other biotechnology or pharmaceutical companies, including our competitors or potential competitors. We may be subject to claims that these employees, or we, have used or disclosed trade secrets or other proprietary information of their former employers. Litigation may be necessary to defend against these claims. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to management.

#### **Risks Related to Our Securities**

***Raising additional capital may cause dilution to existing stockholders, restrict our operations or require us to relinquish rights. Additionally, sales of a substantial number of shares of our common stock or other securities in the public market could cause our stock price to fall.***

We expect to seek the additional capital necessary to fund our operations through public or private equity offerings, collaboration agreements, debt financings or licensing arrangements. To the extent that we raise additional capital through the sale of equity or

convertible debt securities, existing stockholders' ownership interests will be diluted and the terms may include liquidation or other preferences that adversely affect their rights as a stockholder. Debt 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 collaboration or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies or drug candidates, or grant licenses on terms that are not favorable to us. In addition, sales of a substantial number of shares of our common stock or other securities in the public market could occur at any time. These sales, or the perception in the market that the holders of a large number of shares intend to sell shares, could reduce the market price of our common stock.

***We may issue additional shares of our common stock in accordance with our equity incentive plans or upon exercise or conversion of outstanding securities that are exercisable for or convertible into shares of our common stock, which may cause dilution to existing stockholders.***

As of January 15, 2025, there were 96,389 shares of common stock reserved for issuance upon the exercise of outstanding options granted under our equity incentive plans. As of January 15, 2025, there were (i) 937 additional shares of common stock reserved for future issuance of awards under the Bio-Path Holdings, Inc. 2017 Stock Incentive Plan, as amended (the "2017 Stock Incentive Plan"), and (ii) 1,200,948 additional shares of common stock reserved for future issuance of awards under the Bio-Path Holdings, Inc. 2022 Stock Incentive Plan (the "2022 Stock Incentive Plan"). In addition, as of January 15, 2025, there were 16,490,014 shares of common stock reserved for issuance upon the exercise of outstanding warrants that we have issued in connection with prior securities offerings. To the extent that outstanding stock options and warrants are exercised, existing stockholders' ownership interests may be diluted, which may reduce the market price of our common stock.

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

The trading price of our common stock has been highly volatile. From January 1, 2020 through January 15, 2025, our stock price has fluctuated from a low of \$0.61 to a high of \$486.80, after adjustment for reverse stock splits. The market price for our common stock will be affected by a number of factors, including:

- the denial or delay of regulatory approvals of our drug candidates or receipt of regulatory approval of competing products;
- our ability to accomplish clinical, regulatory and other drug development milestones;
- the ability of our drug candidates, if they receive regulatory approval, to achieve market success;
- the performance of third-party manufacturers and suppliers;
- developments with respect to patents and other intellectual property rights;
- sales of common stock or other securities by us or our stockholders in the future;
- additions or departures of key scientific or management personnel;
- disputes or other developments relating to proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our drug candidates;
- trading volume of our common stock;
- investor perceptions about us and our industry;
- public reaction to our press releases, other public announcements and SEC and other filings;
- the failure of analysts to cover us, or changes in analysts' estimates or recommendations;

- the failure by us to meet analysts' projections or guidance;
- general market conditions and other factors unrelated to our operating performance or the operating performance of our competitors; and
- the other factors described elsewhere in this "Item 1A. Risk Factors" or the section titled "Risk Factors" contained in our other public filings.

The stock prices of many companies in the biotechnology industry have experienced wide fluctuations that have often been unrelated to the operating performance of these companies. Following periods of volatility in the market price of a company's securities, securities class action litigation often has been initiated against a company. If any class action litigation is initiated against us, we may incur substantial costs and our management's attention may be diverted from our operations, which could materially adversely affect our business and financial condition.

***Our common stock is thinly traded and in the future may continue to be thinly traded, and our stockholders may be unable to sell at or near asking prices or at all if they need to sell their shares to raise money or otherwise desire to liquidate such shares.***

To date, we have a low volume of daily trades in our common stock on The Nasdaq Capital Market. Our stockholders may be unable to sell their common stock at or near their asking prices or at all, which may result in substantial losses to our stockholders.

The market for our common stock may be characterized by significant price volatility when compared to seasoned issuers, and we expect that our share price will be more volatile than a seasoned issuer for the foreseeable future. As noted above, our common stock may be sporadically and/or thinly traded. As a consequence of this lack of liquidity, the trading of relatively small quantities of shares by our stockholders may disproportionately influence the price of those shares in either direction.

***Our certificate of incorporation grants our Board of Directors the power to designate and issue additional shares of common and/or preferred stock.***

Our authorized capital consists of 200,000,000 shares of common stock and 10,000,000 shares of preferred stock. Our preferred stock may be designated into series pursuant to authority granted by our certificate of incorporation, and on approval from our Board of Directors (the "Board"). The Board, without any action by our stockholders, may designate and issue shares in such classes or series as the Board deems appropriate and establish the rights, preferences and privileges of such shares, including dividends, liquidation and voting rights. The rights of holders of other classes or series of stock that may be issued could be superior to the rights of holders of our common shares. The designation and issuance of shares of capital stock having preferential rights could adversely affect other rights appurtenant to shares of our common stock.

***We do not anticipate paying cash dividends, and accordingly stockholders must rely on stock appreciation for any return on their investment in us.***

We anticipate that we will retain our earnings, if any, for future growth and therefore do not anticipate paying cash dividends in the future. As a result, only appreciation of the price of our common stock will provide a return to stockholders.

***Our management is required to devote substantial time and incur additional expense to comply with public company regulations.***

As a public reporting company, we are subject to the Sarbanes-Oxley Act of 2002, as well as to the information and reporting requirements of the SEC and other federal securities laws. We are also subject to the rules of The Nasdaq Stock Market. As a result, we incur significant legal, accounting, and other expenses that we would not incur as a private company, including costs associated with our public company reporting requirements and corporate governance requirements. Compliance with these public company obligations places significant additional demands on our limited number of finance and accounting staff and on our financial, accounting and information systems.

***Failure to maintain effective internal control over financial reporting in accordance with Section 404 of the Sarbanes-Oxley Act of 2002 could have a material adverse effect on the price of our common stock.***

Section 404 of the Sarbanes-Oxley Act of 2002 and the related rules and regulations of the SEC require an annual management assessment of the effectiveness of our internal control over financial reporting. As a smaller reporting company as defined in Rule 12b-2 under the Exchange Act, we are currently exempt from the auditor attestation requirement of Section 404(b). If we lose this eligibility, we will incur increased personnel and audit fees in connection with the additional audit requirements. If we fail to maintain the adequacy of our internal control over financial reporting, we may not be able to ensure that we can conclude on an ongoing basis that we have effective internal control over financial reporting in accordance with Section 404 of the Sarbanes-Oxley Act of 2002 and the related rules and regulations of the SEC. If we cannot in the future favorably assess the effectiveness of our internal control over financial reporting, investor confidence in the reliability of our financial reports may be adversely affected, which could have a material adverse effect on the price of our common stock.

***Recent and future reverse stock splits may decrease the liquidity of our common stock and result in higher transaction costs.***

Our stockholders approved a reverse stock split at our 2024 Annual Meeting which may be effected in the sole discretion of the Board of Directors, at a ratio of up to 1-for-30, and may be abandoned in the sole discretion of the Board of Directors. The liquidity of our common stock may be negatively impacted by any such reverse stock split, given the reduced number of shares that are outstanding after such a reverse stock split, particularly if the stock price does not increase as a result of such reverse stock split. Additionally, if the reverse stock split is implemented, it will increase the number of our stockholders who own “odd lots” of fewer than 100 shares of common stock. Brokerage commissions and other costs of transactions in odd lots are generally higher than the costs of transactions of more than 100 shares of common stock. Accordingly, a reverse stock split may not achieve the desired results of increasing the stock price of our common stock.

***Following a reverse stock split, the resulting market price of our common stock may not attract new investors, including institutional investors, and may not satisfy the investing requirements of those investors. Consequently, the trading liquidity of our common stock may not improve.***

Although we believe that a higher market price of our common stock may help generate greater or broader investor interest, there can be no assurance that a reverse stock split, will result in a share price that will attract new investors, including institutional investors. In addition, there can be no assurance that the market price of our common stock will satisfy the investing requirements of those investors. As a result, the trading liquidity of our common stock may not necessarily improve. If we effect the reverse stock split approved at the 2024 Annual Meeting, the primary intent will be the anticipated increase in the price of our common stock immediately following and resulting from a reverse stock split due to the reduction in the number of issued and outstanding shares of common stock would help us meet the Minimum Bid Price Rule pursuant to Nasdaq Listing Rules. It cannot be assured that a reverse stock split will result in any sustained proportionate increase in the market price of our common stock, which is dependent upon many factors, including our business and financial performance, general market conditions, and prospects for future success, which are unrelated to the number of shares of our common stock outstanding. It is not uncommon for the market price of a company’s common stock to decline in the period following a reverse stock split.

***If securities or industry analysts do not publish research or reports about us, or if they adversely change their recommendations regarding our common stock, then our stock price and trading volume could decline.***

The trading market for our common stock will be influenced by the research and reports that industry or securities analysts publish about us, our industry and our market. If no analyst elects to cover us and publish research or reports about us, the market for our common stock could be severely limited and our stock price could be adversely affected. As a small-cap company, we are more likely than our larger competitors to lack coverage from securities analysts. In addition, even if we receive analyst coverage, if one or more analysts ceases coverage of us or fails to regularly publish reports on us, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline. If one or more analysts who elect to cover us issue negative reports or adversely change their recommendations regarding our common stock, our stock price could decline.

## SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended (the “Securities Act”) and Section 21E of the Exchange Act. Forward-looking statements can be identified by words such as “anticipate,” “expect,” “intend,” “plan,” “believe,” “seek,” “estimate,” “project,” “goal,” “strategy,” “future,” “likely,” “may,” “should,” “will” and variations of these words and similar references to future periods, although not all forward-looking statements contain these identifying words. Forward-looking statements are neither historical facts nor assurances of future performance. Instead, they are based on our current beliefs, expectations and assumptions regarding the future of our business, future plans and strategies, projections, anticipated events and trends, the economy and other future conditions. Because forward-looking statements relate to the future, they are subject to inherent risks, uncertainties, and changes in circumstances, including but not limited to risk factors included in this prospectus and other factors described elsewhere in this prospectus or in our current and future filings with the Securities and Exchange Commission (the “SEC”). As a result, our actual results may differ materially from those expressed or forecasted in the forward-looking statements, and you should not rely on such forward-looking statements. You should carefully read this prospectus completely and with the understanding that our actual future results may be materially different from what we expect. We can give no assurances that any of the events anticipated by the forward-looking statements will occur or, if any of them do, what impact they will have on our results of operations and financial condition. Forward-looking statements include, but are not limited to, statements about:

- our lack of significant revenue to date, our history of recurring operating losses and our expectation of future operating losses;
- our need for substantial additional capital and our need to delay, reduce or eliminate our drug development and commercialization efforts if we are unable to raise additional capital;
- the highly-competitive nature of the pharmaceutical and biotechnology industry and our ability to compete effectively;
- the success of our plans to use collaboration arrangements to leverage our capabilities;
- our ability to retain and attract key personnel;
- the risk of misconduct of our employees, agents, consultants and commercial partners;
- disruptions to our operations due to expansions of our operations;
- the costs we would incur if we acquire or license technologies, resources or drug candidates;
- risks associated with product liability claims;
- our reliance on information technology systems and the liability or interruption associated with cyber-attacks or other breaches of our systems;
- our ability to use net operating loss carryforwards;
- provisions in our charter documents and state law that may prevent a change in control;
- work slowdown or stoppage at government agencies could negatively impact our business;
- the impact, risks and uncertainties related to global pandemics, including the COVID-19 pandemic, and actions taken by governmental authorities or others in connection therewith;
- our need to complete extensive clinical trials and the risk that we may not be able to demonstrate the safety and efficacy of our drug candidates;
- risks that that our clinical trials may be delayed or terminated;

- our ability to obtain domestic and/or foreign regulatory approval for our drug candidates;
- changes in existing laws and regulations affecting the healthcare industry;
- our reliance on third parties to conduct clinical trials for our drug candidates;
- our ability to maintain orphan drug exclusivity for our drug candidates;
- our reliance on third parties for manufacturing our clinical drug supplies;
- risks associated with the manufacture of our drug candidates;
- our ability to establish sales and marketing capabilities relating to our drug candidates;
- market acceptance of our drug candidates;
- third-party payor reimbursement practices;
- our ability to adequately protect the intellectual property of our drug candidates;
- infringement on the intellectual property rights of third parties;
- costs and time relating to litigation regarding intellectual property rights;
- our ability to adequately prevent disclosure by our employees or others of trade secrets and other proprietary information;
- our need to raise additional capital;
- the volatility of the trading price of our common stock;
- our common stock being thinly traded;
- our ability to issue shares of common or preferred stock without approval from our stockholders;
- our ability to pay cash dividends;
- costs and expenses associated with being a public company;
- our ability to maintain effective internal controls over financial reporting; and
- our ability to regain and maintain compliance with the listing standards of the Nasdaq Capital Market.

Any forward-looking statement made by us in this prospectus is based only on information currently available to us and speaks only as of the date on which it is made. We undertake no obligation to publicly update any forward-looking statement, whether as a result of new information, future developments or otherwise. However, you should carefully review the risk factors set forth in other reports or documents we file from time to time with the SEC.

## USE OF PROCEEDS

We expect to receive net proceeds from this offering of approximately \$       million, based on an assumed combined public offering price of \$       per share of common stock and accompanying Common Warrants, which is the last reported sale price per share of our common stock on the Nasdaq Capital Market on       , 2025, after deducting estimated placement agent fees and the estimated offering expenses payable by us, assuming no sale of any Pre-Funded Warrants in this offering and excluding the proceeds we may receive from the cash exercise of the Common Warrants issued in this offering, if any. We cannot predict when or if the Pre-Funded Warrants, the Common Warrants and the Placement Agent Warrants will be exercised, or if they will be exercised for cash. It is possible that the Common Warrants and the Placement Agent Warrants may expire and may never be exercised. Because this is a best efforts offering and there is no minimum offering amount required as a condition to the closing of this offering, the actual offering amount, Placement Agent's fees and net proceeds to us are not presently determinable and may be substantially less than the maximum amounts set forth on the cover page of this prospectus.

We currently intend to use the net proceeds from this offering for working capital and general corporate purposes. As of the date of this prospectus, we cannot specify with certainty all of the particular uses of the proceeds from this offering. Accordingly, we will retain broad discretion over the use of such proceeds.

## DILUTION

If you invest in our securities, you will experience immediate and substantial dilution to the extent of the difference between the effective public offering price per share of common stock in this offering and the pro forma as adjusted net tangible book value per share of our common stock immediately after the offering.

Our net tangible book value per share is determined by subtracting our total liabilities from our total tangible assets, which is total assets less intangible assets, and dividing this amount by the number of shares of common stock outstanding. The historical net tangible book value of our common stock as of September 30, 2024 was approximately \$0.4 million, or \$0.11 per share, based on 3,710,190 shares of our common stock outstanding at September 30, 2024.

After giving effect to the Warrant Exercises and the receipt of net proceeds by us of \$2,058 and the net proceeds received in the October 2024 Private Placement, the pro forma net tangible book value of our common stock as of September 30, 2024 would have been approximately \$3.5 million, or \$0.60 per share, based on 5,767,892 shares of our common stock outstanding.

After giving further effect to the sale of shares of common stock and accompanying Common Warrants to be sold in this offering (assuming no sale of any Pre-Funded Warrants), at the assumed combined public offering price of \$ per share of common stock and accompanying Common Warrant, which is the last reported sale price per share of our common stock on the Nasdaq Capital Market on , 2025, and after deducting the estimated placement agent fees and the estimated offering expenses payable by us, and excluding the proceeds we may receive from the exercise of the Common Warrants issued in this offering, our pro forma as adjusted net tangible book value as of September 30, 2024 would have been approximately \$ million, or \$ per share of common stock. This represents an immediate increase in pro forma as adjusted net tangible book value of \$ per share to existing stockholders and an immediate dilution of \$ per share to new investors in this offering. The following table illustrates this dilution on a per share basis:

Assumed combined public offering price per share and Common Warrants		\$
Historical net tangible book value per share as of September 30, 2024	\$	0.11
Pro forma net tangible book value after giving effect to the Warrant Exercises and the October 2024 Private Placement	\$	0.60
Increase in net tangible book value per share attributable to new investors	\$	0.56
Pro forma as adjusted net tangible book value per share as of September 30, 2024, after this offering		\$
Dilution per share to new investors		\$

A \$0.20 increase in the assumed combined public offering price of \$ per share and Common Warrants would increase our pro forma as adjusted net tangible book value after this offering to \$ million, or \$ per share, and the dilution per share to investors purchasing securities in this offering would be approximately \$ per share, assuming that the number of shares of common stock and Common Warrants offered by us, as set forth on the cover page of this prospectus, remains the same (assuming no sale of Pre-Funded Warrants) and after deducting the estimated placement agent fees and estimated offering expenses payable by us. Similarly, a \$0.20 decrease in the assumed combined public offering price of \$ per share and Common Warrants would increase our pro forma as adjusted net tangible book value after this offering to \$ million, or \$ per share, and the dilution per share to investors purchasing securities in this offering would be approximately \$ per share, assuming that the number of shares of common stock and Common Warrants offered by us, as set forth on the cover page of this prospectus remains the same (assuming no sale of Pre-Funded Warrants) and after deducting the estimated placement agent fees and estimated offering expenses payable by us.

An increase of one million shares of common stock and accompanying Common Warrants offered by us from the assumed number of shares of common stock and accompanying Common Warrants set forth on the cover page of this prospectus would increase our pro forma as adjusted net tangible book value after this offering to \$ million, or \$ per share, and the dilution per share to investors purchasing securities in this offering would be approximately \$ per share, assuming that the assumed combined public offering price remains the same and after deducting the estimated placement agent fees and estimated offering expenses payable by us. Similarly, a decrease of one million shares of common stock and accompanying Common Warrants offered by us from the assumed number of shares of common stock and accompanying Common Warrants set forth on the cover page of this prospectus would increase our pro forma as adjusted net tangible book value after this offering to \$ million, or \$ per share, and the dilution per share to investors purchasing securities in this offering would be approximately \$ per share, assuming that the assumed



combined public offering price remains the same and after deducting the estimated placement agent fees and estimated offering expenses payable by us.

The information discussed above is for illustration only and will adjust based on the actual public offering price, the actual number of shares and Common Warrants that we offer in this offering and other terms of this offering determined at pricing. The discussion and table above assume (i) no sale of Pre-Funded Warrants, which, if sold, would reduce the number of shares of common stock that we are offering on a one-for-one basis and (ii) no exercise of Common Warrants accompanying the shares of common stock sold in this offering.

The above discussion and table are based on 3,710,190 shares of our common stock outstanding as of September 30, 2024, which excludes as of September 30, 2024:

- 96,389 shares of common stock reserved for issuance upon the exercise of outstanding options granted under our equity incentive plans with a weighted average exercise price of \$71.40 per share;
- 1,200,948 additional shares of common stock reserved for future issuance under our 2022 Stock Incentive Plan; and
- 4,421,679 shares of common stock that may be issued upon exercise of outstanding warrants with a weighted average exercise price of \$3.13 per share.

Except with respect to the Warrant Exercises, the above illustration of dilution per share to investors participating in this offering does not take into account further dilution to investors in this offering that could occur upon the exercise of outstanding options and warrants having a per share exercise price less than the effective public offering price per share in this offering. To the extent that any of these outstanding options or warrants outstanding as of September 30, 2024, have been or are exercised in the future or we issue additional shares under our equity incentive plans, investors purchasing securities in this offering may experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

## MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

In addition to historical information, this prospectus contains forward-looking statements that involve significant risks and uncertainties, which may cause our actual results to differ materially from plans and results discussed in forward-looking statements. We encourage you to review the risks and uncertainties, discussed in "Risk Factors" and "Special Note Regarding Forward-Looking Statements," included elsewhere in this prospectus. The risks and uncertainties can cause actual results to differ significantly from those forecasted in forward-looking statements or implied in historical results and trends.

The following discussion of our financial condition and results of operations should be read in conjunction with our financial statements and related notes included elsewhere in this prospectus.

### Overview

We are a clinical and preclinical stage oncology-and obesity-focused RNAi nanoparticle drug development company utilizing a novel technology that achieves systemic delivery for target-specific protein inhibition for any gene product that is over-expressed in disease. Our drug delivery and antisense technology, called DNAbilize<sup>®</sup>, is a platform that uses P-ethoxy, which is a deoxyribonucleic acid (DNA) backbone modification that is intended to protect the DNA from destruction by the body's enzymes when circulating in vivo, incorporated inside of a lipid bilayer having neutral charge. We believe this combination allows for high efficiency loading of antisense DNA into non-toxic, cell-membrane-like structures for delivery of the antisense drug substance into cells. In vivo, the DNAbilize<sup>®</sup> delivered antisense drug substances are systemically distributed throughout the body to allow for reduction or elimination of target proteins in blood diseases and solid tumors. Through testing in numerous animal studies and dosing in clinical trials, our DNAbilize<sup>®</sup> drug candidates have demonstrated an excellent safety profile. DNAbilize<sup>®</sup> is a registered trademark of the Company.

Using DNAbilize<sup>®</sup> as a platform for drug development and manufacturing, we currently have four drug candidates in development to treat at least five different cancer disease indications. Our lead drug candidate, prexigebersen, which targets Grb2, initially started the efficacy portion of a Phase 2 clinical trial for untreated AML patients in combination with LDAC. However, the changing landscape of AML treatment has led to amendment of the Phase 2 clinical study by removing the combination treatment of prexigebersen and LDAC and replacing it with the combination treatment of prexigebersen and decitabine.

Venetoclax in combination with LDAC, decitabine or azacytidine (the latter two drugs are DNA hypomethylating agents) is approved as frontline therapy for newly diagnosed AML in adults who are 75 years or older, or who have comorbidities precluding intensive induction chemotherapy. We believe this approval of the frontline venetoclax and decitabine combination therapy provides an opportunity for combining prexigebersen with the combination therapy for the treatment of newly diagnosed AML patients. In preclinical efficacy studies, four AML cancer cell lines were treated with three different combinations of decitabine, venetoclax and prexigebersen. Decrease in AML cell viability was the primary measure of efficacy. The triple combination of decitabine, venetoclax and prexigebersen showed significant improvement in efficacy in three of the four AML cell lines. Based on these results, we believe that adding prexigebersen to the treatment combination of decitabine and venetoclax could lead to improved efficacy in AML patients.

Our approved amended Phase 2 clinical trial currently has three cohorts of patients. The first two cohorts will treat patients with the triple combination of prexigebersen, decitabine and venetoclax. The first cohort will include newly diagnosed AML patients, and the second cohort will include relapsed/refractory AML patients. Finally, the third cohort will treat relapsed/refractory AML patients, who are venetoclax-resistant or -intolerant, with the two-drug combination of prexigebersen and decitabine. The full trial design plans have approximately 98 evaluable patients for the first cohort having newly diagnosed AML patients with a preliminary review performed after 19 evaluable patients and a formal interim analysis after 38 evaluable patients. The full trial design plans have approximately 54 evaluable patients for each of the second cohort, having relapsed/refractory AML patients, and the third cohort, having AML patients who are venetoclax-resistant or -intolerant, in each case with a review performed after 19 evaluable patients. The study is anticipated to be conducted at up to ten clinical sites in the U.S., and Gail J. Roboz, MD, is the national coordinating Principal Investigator for the Phase 2 trial. Dr. Roboz is a professor of medicine and director of the Clinical and Translational Leukemia Program at the Weill Medical College of Cornell University (the "Weill Medical College") and the New York-Presbyterian Hospital in New York City.

The safety run-in of the triple combination of prexigebersen, decitabine and venetoclax for the Phase 2 clinical study was successfully completed. The preliminary data, presented at the 2021 ASH Annual Meeting, showed the treatment was well-tolerated and there were no dose limiting toxicities attributed to prexigebersen.

On June 3, 2024, we announced additional interim data for the first two cohorts of the Phase 2 clinical trial. In Cohort 1, 31 newly diagnosed patients were enrolled; 20 evaluable patients with a median age of 75 years, treated with at least one cycle of prexigebersen, decitabine and venetoclax, had adverse-risk or secondary AML evolved from myelodysplastic syndromes, chronic myelomonocytic leukemia or treatment-related AML. Fifteen patients (75%) achieved CR/CRi/CRh. One patient achieved partial remission (“PR”), three patients achieved stable disease, and one patient had toxicity attributed to decitabine and venetoclax treatment. In Cohort 2, 40 relapsed/refractory patients were enrolled; 23 evaluable patients with a median age of 63 years, treated with at least one cycle of prexigebersen, decitabine and venetoclax, had adverse-risk or secondary AML. Twelve patients (55%) achieved CR/CRi/CRh, one patient achieved PR, eight patients achieved stable disease and two patients had progressive disease or treatment failure. Among the evaluable patients of both cohorts, adverse events were consistent with those expected with decitabine and venetoclax and/or AML, including fatigue (72%), anemia (60%) and neutropenia (49%), while the most frequent severe adverse events were febrile neutropenia (26%) and sepsis (5%). The interim analysis data was selected as an oral presentation in the 2024 ASCO Annual Meeting and as a poster presentation in the 2024 EHA Annual Meeting. Based on this interim data, we expect to continue enrollment of up to 98 and 54 evaluable patients for Cohorts 1 and 2, respectively and plan to pursue FDA expedited programs for Fast Track designation. We are evaluating whether to seek to expand Stage 2 of the Phase 2 clinical trial in Europe. We expect to complete enrollment in cohorts 1 and 2 in 2026.

Our second drug candidate, Liposomal Bcl-2 (“BP1002”), targets the protein Bcl-2, which is responsible for driving cell survival in up to 60% of all cancers. A Phase 1 clinical trial to evaluate the ability of BP1002 to treat refractory/relapsed lymphoma and refractory/relapsed CLL patients is being conducted at the Georgia Cancer Center, The University of Texas Southwestern and New York Medical College. A total of six evaluable patients are scheduled to be treated over two dose levels with BP1002 monotherapy in a standard 3+3 design. Enrollment has been successfully completed for both dose cohorts, 20 and 40 mg/m<sup>2</sup>. There were no dose limiting toxicities.

On December 11, 2024, we announced that the Phase 1 clinical trial evaluating BP1002 as a treatment for refractory/relapsed lymphoma and refractory/relapsed chronic lymphocytic leukemia has discontinued enrollment. This decision was based on enrollment challenges in these niche indications, particularly given the crowded development landscape that includes multiple competing trials.

Additionally, preclinical studies suggest that the combination of BP1002 with decitabine is efficacious in venetoclax-resistant cells. An abstract of the preclinical study was presented at the 2021 American Association for Cancer Research (“AACR”) Annual Meeting. A Phase 1/1b clinical trial to investigate the ability of BP1002 to treat refractory/relapsed AML patients, including venetoclax-resistant patients, is being studied. A recent study found that AML patients who had relapsed from frontline venetoclax-based treatment had a very poor prognosis, with a median survival of less than three months. Since venetoclax and BP1002 utilize different mechanisms of action, we believe that BP1002 may be a potential treatment for venetoclax-relapsed AML patients. The Phase 1/1b clinical trial is being conducted at several leading cancer centers in the United States, including the Weill Medical College, MD Anderson, Scripps Health and The University of California at Los Angeles Cancer Center. On October 7, 2024, we announced that the FDA had completed its review of PK/PD data from the first two dosing cohorts (20 and 40 mg/m<sup>2</sup>) and that the enrollment for the third dosing cohort (60 mg/m<sup>2</sup>) is now complete. We expect to advance to the next planned higher dose of 90 mg/m<sup>2</sup> in the fourth quarter of 2024. The approved treatment cycle is two doses per week over four weeks, resulting in eight doses administered over twenty-eight days. The Phase 1b portion of the study is expected to commence after completion of BP1002 monotherapy cohorts and will assess the safety and efficacy of BP1002 in combination with decitabine in refractory/relapsed AML patients.

Our third drug candidate, Liposomal STAT3 (“BP1003”), targets the STAT3 protein and is currently in IND enabling studies as a potential treatment of pancreatic cancer, NSCLC and AML. Preclinical studies showing BP1003’s ability to inhibit STAT3 protein expression and cancer cell viability had been presented at AACR Annual Meetings. On September 16, 2024, we announced a publication in the peer-reviewed journal, *Biomedicines*, which highlights the therapeutic potential and broad anti-tumor effect of BP1003 in numerous preclinical solid tumor models, including breast, ovarian, and pancreatic cancer. Our lead indication for BP1003 is pancreatic cancer due to the severity of this disease and the lack of effective, life-extending treatments. For example, pancreatic adenocarcinoma is projected to be the second most lethal cancer behind lung cancer by 2030. Typical survival for a metastatic pancreatic cancer patient is about three to six months from diagnosis. We have successfully completed several IND enabling studies of BP1003 and have one additional IND enabling study to complete. Once the additional study is successfully completed, our goal is to file an IND application and initiate the first-in-humans Phase 1 study of BP1003 in patients with refractory, metastatic solid tumors, including pancreatic cancer and NSCLC.

In addition, a modified product named BP1001-A, our fourth drug candidate, has shown to enhance chemotherapy efficacy in preclinical solid tumor models. Results of the preclinical study were published in the scientific journal *Oncotarget* in 2020. BP1001-A incorporates the same drug substance as prexigebersen but has a slightly modified formulation designed to enhance nanoparticle properties. A BP1001-A Phase 1/1b clinical trial in patients with advanced or recurrent solid tumors is being conducted at several leading cancer centers in the United States, including MD Anderson, Karmanos Cancer Institute, Mary Crowley Cancer Research and Holy Cross Hospital, Maryland. A total of nine evaluable patients are scheduled to be treated with BP1001-A monotherapy over three dose levels in a standard 3+3 dose escalation design. The first dose cohort consisted of a starting dose of 60 mg/m<sup>2</sup> had been completed, and there were no dose limiting toxicities. Enrollment is now open for patients for the second dose cohort of 90 mg/m<sup>2</sup> which we expect to be complete in the first quarter of 2025 in order to advance to dose level 3. The Phase 1b portion of the study is expected to commence after successful completion of BP1001-A monotherapy cohorts and is intended to assess the safety and efficacy of BP1001-A in combination with paclitaxel in patients with recurrent ovarian or endometrial tumors. Phase 1b studies are also expected to be opened in combination with gemcitabine in Stage 4 pancreatic cancer and combination therapy in breast cancer.

#### *Development and Treatment for Obesity*

Insulin resistance is the major contributor to obesity, Type 2 diabetes and other related metabolic diseases. Insulin lowers blood glucose level by activating the PI3K/AKT pathway. However, this insulin pathway is dysfunctional in obese patients who have Type 2 diabetes. Literature suggests that Grb2 is an inhibitor of the insulin/PI3K/AKT pathway. Upregulation of the Grb2 gene has been reported for patients with Type 2 diabetes. Knockdown of Grb2 expression enhanced insulin-induced AKT activity and glucose uptake in myoblast and hepatoma cells. Furthermore, insulin sensitivity was restored in Grb2 heterozygous knockout mice fed on high fat-induced diet. We expect that by downregulating Grb2 expression, BP1001-A will lower blood glucose level by enhancing insulin-mediated AKT activation and glucose uptake and storage.

On December 19, 2024, we announced the results of our initial preclinical work; BP1001-A, by downregulating Grb2 expression, increased the levels of phosphorylated AKT and phosphorylated FOXO-1 (a downstream AKT effector) in myoblast and hepatoma cells in the presence of insulin. These preliminary data confirmed that BP1001-A could affect the insulin/PI3K/AKT pathway and increase insulin sensitivity, thus validating BP1001-A as a potential treatment for obesity in Type 2 diabetes patients. We have initiated animal studies to confirm the efficacy of BP1001-A as a potential treatment for obesity and related metabolic diseases in Type 2 diabetes patients. If successful, we anticipate initiating a first-in-human Phase 1 clinical trial in 2025 to further validate safety, measure pharmacokinetics and establish dosing for potential pivotal trials.

Our DNabilize<sup>®</sup> technology-based products are available for out-licensing or partnering. We intend to apply our drug technology template to new disease-causing protein targets to develop new liposomal antisense drug candidates for inclusion in our pipeline that meet scientific, preclinical and commercial criteria and file new patents on these targets. We expect that these efforts will include collaboration with key scientific opinion leaders in the field of study and include developing drug candidates for diseases other than cancer. As we expand our drug development programs, we will look at indications where a systemic delivery is needed and antisense RNAi nanoparticles can be used to slow, reverse or cure a disease, either alone or in combination with another drug.

We are developing a molecular biomarker package to accompany prexigebersen treatment, the goal of which is to identify patients with a genetic profile more likely to respond to treatment thereby improving probability of success for this program. The emerging role of biomarkers has been enhancing cancer development over the past decade and has become a more common companion to many cancer development programs. We expect to develop molecular biomarker packages to accompany our new programs.

We have certain intellectual property as the basis for our current drug products in clinical development, prexigebersen, BP1002, BP1003 and BP1001-A. We are developing RNAi antisense nanoparticle drug candidates based on our own patented technology to treat cancer, obesity and autoimmune disorders where targeting a single protein may be advantageous and result in reduced patient adverse effects as compared to small molecule inhibitors with off-target and non-specific effects. We have composition of matter and method of use intellectual property for the design and manufacture of antisense RNAi nanoparticle drug products.

As of September 30 2024, we had an accumulated deficit of \$114.7 million. Our net loss was \$16.1 million and \$7.1 million for the year ended December 31, 2023 and for nine months ended September 30, 2024, respectively. We expect to continue to incur significant operating losses, and we anticipate that our losses may increase substantially as we expand our drug development programs and commercialization efforts. To achieve profitability, we must enter into license or development agreements with third parties or

successfully develop and obtain regulatory approval for one or more of our drug candidates and effectively commercialize any drug candidates we develop. In addition, if we obtain regulatory approval of one or more of our drug candidates, we expect to incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution. Even if we succeed in developing and commercializing one or more of our drug candidates, we may not be able to generate sufficient revenue and we may never be able to achieve or sustain profitability. We expect to finance our foreseeable cash requirements through cash on hand, cash from operations, debt financings and public or private equity offerings. We may seek to access the public or private equity markets whenever conditions are favorable; however, there can be no assurance that we will be able to raise additional capital when needed or on terms that are favorable to us, if at all. Additionally, we may seek collaborations and license arrangements for our drug candidates. We currently have no lines of credit or other arranged access to debt financing.

### ***Financial Operations Overview***

#### ***Revenue***

We have not generated significant revenues to date. Our ability to generate revenues from our drug candidates will depend heavily on the successful development and eventual commercialization of our drug candidates.

In the future, we may generate revenue from a combination of product sales, third-party grants, service agreements, strategic alliances and licensing arrangements. We expect that any revenue we generate will fluctuate due to the timing and amount of services performed, milestones achieved, license fees earned and payments received upon the eventual sales of our drug candidates, in the event any are successfully commercialized. If we fail to complete the development of any of our drug candidates or obtain regulatory approval for them, our ability to generate future revenue will be adversely affected.

#### ***Research and development expenses***

Research and development expenses consist of costs associated with our research activities, including the development of our drug candidates. Our research and development expenses consist of:

- expenses related to research and development personnel, including salaries and benefits, travel and stock-based compensation;
- external research and development expenses incurred under arrangements with third parties, such as contract research organizations, clinical investigative sites, laboratories, manufacturing organizations and consultants; and
- costs of materials used during research and development activities.

Costs and expenses that can be clearly identified as research and development are charged to expense as incurred. Advance payments, including nonrefundable amounts, for goods or services that will be used or rendered for future research and development activities are deferred and capitalized. Such amounts will be recognized as an expense as the related goods are delivered or the related services are performed. If the goods will not be delivered, or services will not be rendered, then the capitalized advance payment is charged to expense.

We expect research and development expenses associated with the completion of the associated clinical trials to be substantial and to increase over time. The successful development of our drug candidates is highly uncertain. At this time, we cannot reasonably estimate or know the nature, timing and estimated costs of the efforts that will be necessary to complete development of our drug candidates or the period, if any, in which material net cash inflows from our drug candidates may commence. This is due to the numerous risks and uncertainties associated with developing drugs, including the uncertainty of:

- the rate of progress, results and costs of completion of ongoing clinical trials of our drug candidates;
- the size, scope, rate of progress, results and costs of completion of any potential future clinical trials and preclinical tests of our drug candidates that we may initiate;

- competing technological and market developments;
- the performance of third-party manufacturers and suppliers;
- the ability of our drug candidates, if they receive regulatory approval, to achieve market success;
- disputes or other developments relating to proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our drug candidates; and
- the impact, risks and uncertainties related to global pandemics and actions taken by governmental authorities or others in connection therewith.

A change in the outcome of any of these variables with respect to the development of a drug candidate could mean a significant change in the costs and timing associated with the development of that drug candidate. For example, if the FDA or other regulatory authority were to require us to conduct clinical trials beyond those which we currently anticipate will be required for the completion of clinical development of a drug candidate or if we experience significant delays in enrollment in any clinical trials, we could be required to expend significant additional financial resources and time on the completion of clinical development.

#### ***General and administrative expenses***

Our general and administrative expenses consist primarily of salaries and benefits for management and administrative personnel, professional fees for legal, accounting and other services, travel costs and facility-related costs such as rent, utilities and other general office expenses.

#### **Results of Operations**

##### ***Comparisons of the Three Months Ended September 30, 2024 to the Three Months Ended September 30, 2023***

*Revenue.* We had no revenue for each of the three months ended September 30, 2024 and 2023.

*Research and Development Expense.* Our research and development expense for the three months ended September 30, 2024 was \$1.3 million, a decrease of \$1.0 million compared to the three months ended September 30, 2023. The decrease in research and development expense was primarily due to decreased manufacturing expenses related to drug product releases as well as a decrease in expense related to our clinical trial for BP1001 in AML due to timing of patient enrollment during the quarter. The following table sets forth our research and development expenses (in thousands):

	Three Months Ended September 30,	
	2024	2023
Research and development expense	\$ 1,283	\$ 2,247
Non-cash stock-based compensation expense	34	45
Total research and development expense	\$ 1,317	\$ 2,292

*General and Administrative Expense.* Our general and administrative expense for the three months ended September 30, 2024 was \$1.3 million, an increase of \$0.3 million compared to the three months ended September 30, 2023. The increase in general and administrative expense was primarily due to increased legal fees and salaries and benefits expense. The following table sets forth our general and administrative expenses (in thousands):

	Three Months Ended September 30,	
	2024	2023
General and administrative expense	\$ 1,223	\$ 851
Non-cash stock-based compensation expense	94	133
Total general and administrative expense	\$ 1,317	\$ 984

*Net Operating Loss.* Our net loss from operations for the three months ended September 30, 2024 was \$2.6 million, a decrease of \$0.6 million compared to the three months ended September 30, 2023.

*Change in Fair Value of Warrant Liability:* The change in fair value of the warrant liability for the three months ended September 30, 2024 resulted in non-cash income of \$0.5 million.

*Net Loss.* Our net loss for the three months ended September 30, 2024 was \$2.1 million, a decrease of \$1.1 million compared to the three months ended September 30, 2023.

*Net Loss per Share.* Net loss per share, both basic and diluted, for the three months ended September 30, 2024 was \$0.70, compared to \$6.36 for the three months ended September 30, 2023. Net loss per share is calculated using the weighted average number of shares of common stock outstanding during the applicable periods and excludes stock options and warrants because they are antidilutive.

**Comparisons of the Nine Months Ended September 30, 2024 to the Nine Months Ended September 30, 2023**

*Revenue.* We had no revenue for each of the nine months ended September 30, 2024 and 2023.

*Research and Development Expense.* Our research and development expense for the nine months ended September 30, 2024 was \$5.5 million, a decrease of \$3.9 million compared to the nine months ended September 30, 2023. The decrease in research and development expense was primarily due to decreased manufacturing expenses related to drug product releases partially offset by an increase in expense related to our clinical trial for BP1002 in lymphoma due to increased patient enrollment in 2024. The following table sets forth our research and development expenses (in thousands):

	Nine Months Ended September 30,	
	2024	2023
Research and development expense	\$ 5,364	\$ 9,195
Non-cash stock-based compensation expense	114	137
Total research and development expense	\$ 5,478	\$ 9,332

*General and Administrative Expense.* Our general and administrative expense for the nine months ended September 30, 2024 was \$3.9 million, an increase of \$0.4 million compared to the nine months ended September 30, 2023. The increase in general and administrative expense was primarily due to increased legal fees and salaries and benefits expense. The following table sets forth our general and administrative expenses (in thousands):

	Nine Months Ended September 30,	
	2024	2023
General and administrative expense	\$ 3,564	\$ 3,061
Non-cash stock-based compensation expense	325	417
Total general and administrative expense	\$ 3,889	\$ 3,478

*Net Operating Loss.* Our net loss from operations for the nine months ended September 30, 2024 was \$9.4 million, a decrease of \$3.4 million compared to the nine months ended September 30, 2023.

*Change in Fair Value of Warrant Liability.* The change in fair value of the warrant liability for the nine months ended September 30, 2024 resulted in non-cash income of \$2.2 million.

*Net Loss.* Our net loss for the nine months ended September 30, 2024 was \$7.1 million, a decrease of \$5.6 million compared to the nine months ended September 30, 2023.

*Net Loss per Share.* Net loss per share, both basic and diluted, for the nine months ended September 30, 2024 was \$4.05, compared to \$29.34 for the nine months ended September 30, 2023. Net loss per share is calculated using the weighted average number of shares of common stock outstanding during the applicable periods and excludes stock options and warrants because they are antidilutive.

**Comparisons of the Year Ended December 31, 2023 to the Year Ended December 31, 2022**

*Revenue.* We had no revenue for each of the years ended December 31, 2023 and 2022.

*Research and Development Expenses.* Our research and development expense was \$11.6 million for the year ended December 31, 2023, an increase of \$2.4 million compared to the year ended December 31, 2022. The increase in research and development expense was primarily due to manufacturing expenses related to drug product releases in 2023 as well as an increase in expense related to our clinical trial for prexigebersen in AML due to increased patient enrollment in 2023. The following table sets forth our research and development expenses (in thousands):

	Year ended December 31,	
	2023	2022
Research and development expense	\$ 11,425	\$ 8,969
Non-cash stock-based compensation expense	183	196
Total research and development expense	<u>\$ 11,608</u>	<u>\$ 9,165</u>

*General and Administrative Expenses.* Our general and administrative expense was \$4.2 million for the year ended December 31, 2023, a decrease of \$0.5 million compared to the year ended December 31, 2022. The decrease in general and administrative expense was primarily due to decreased salaries and benefits expense as well as Delaware franchise tax expense. The following table sets forth our general and administrative expenses (in thousands):

	Year ended December 31,	
	2023	2022
General and administrative expense	\$ 3,684	\$ 4,081
Non-cash stock-based compensation expense	551	655
Total general and administrative expense	<u>\$ 4,235</u>	<u>\$ 4,736</u>

*Net Operating Loss.* Our net loss from operations was \$15.8 million for the year ended December 31, 2023, an increase of \$1.9 million compared to the year ended December 31, 2022.

*Change in Fair Value of Warrant Liability.* The change in fair value of the warrant liability for the year ended December 31, 2023 resulted in non-cash expense of \$0.3 million.

*Net Loss.* Our net loss was \$16.1 million for the year ended December 31, 2023, an increase of \$2.2 million compared to the year ended December 31, 2022.

*Net Loss per Share.* Net loss per share, both basic and diluted, was \$33.63 per share for the year ended December 31, 2023, compared to \$38.12 per share for the year ended December 31, 2022. Net loss per share is calculated using the weighted average



number of shares of common stock outstanding during the applicable periods and excludes stock options and warrants because they are antidilutive.

## **Liquidity and Capital Resources**

### ***Overview***

We have not generated significant revenues to date. Since our inception, we have funded our operations primarily through public and private offerings of our capital stock and other securities. We expect to finance our foreseeable cash requirements through cash on hand, cash from operations, debt financings and public or private equity offerings. We may seek to access the public or private equity markets whenever conditions are favorable; however, there can be no assurance that we will be able to raise additional capital when needed or on terms that are favorable to us, if at all. Additionally, we may seek collaborations and license arrangements for our drug candidates. We currently have no lines of credit or other arranged access to debt financing.

We had a cash balance of \$0.6 million as of September 30, 2024, a decrease of \$0.5 million compared to December 31, 2023. We do not believe that our available cash at September 30, 2024, together with the net proceeds received from the October 2024 Private Placement will be sufficient to meet obligations and fund our liquidity and capital expenditure requirements for the 12 months from November 14, 2024, the filing date of our Form 10-Q for the nine months ended September 30, 2024. The Company's ability to continue as a going concern is dependent upon obtaining funding through one or more sources as described above to meet its planned obligations and pay its liabilities.

### ***Cash Flows for the Nine Months Ended September 30, 2024***

*Operating Activities.* Net cash used in operating activities for the nine months ended September 30, 2024 was \$7.7 million. Excluding non-cash change in fair value of the warrant liability of \$2.2 million, stock-based compensation expense of \$0.4 million and depreciation and amortization expenses of \$0.1 million, net cash used in operating activities for the nine months ended September 30, 2024 consisted primarily of the net loss for the period of \$7.1 million, an increase other current assets of \$0.4 million and a decrease in lease liabilities of \$0.1 million. These are partially offset by an increase in accounts payable and accrued expenses of \$1.5 million and a decrease in prepaid drug product of \$0.1 million. Net cash used in operating activities for the nine months ended September 30, 2023 was \$9.7 million. Excluding non-cash stock-based compensation expense of \$0.6 and depreciation and amortization expenses of \$0.1 million, partially offset by a non-cash decrease in fair value of the warrant liability of \$0.1 million, included in net loss, net cash used in operating activities for the nine months ended September 30, 2023 consisted primarily of the net loss for the period of \$12.7 million, a decrease in operating liabilities of \$0.4 million and an increase in other current assets of \$0.2 million. These are partially offset by a decrease in prepaid drug product of \$3.0 million.

*Financing Activities.* Net cash provided by financing activities for the nine months ended September 30, 2024 was \$7.2 million from the March 2024 Registered Direct Offering, the April 2024 Registered Direct Offering, the At The Market Offering Agreement and the June 2024 PIPE (each as defined below). Net cash provided by financing activities for the nine months ended September 30, 2023 was \$1.7 million from the 2023 Public Offering (as defined below).

### ***Cash Flows for the Year Ended December 31, 2023***

*Operating Activities.* Net cash used in operating activities for the year ended December 31, 2023 was \$11.5 million. Excluding non-cash stock-based compensation expense of \$0.7 million, change in fair value of the warrant liability of \$0.3 million and depreciation and amortization expenses of \$0.2 million, net cash used in operating activities consisted primarily of the net loss for the period of \$16.1 million. These are partially offset by a decrease in prepaid drug product of \$3.0 million, a decrease in other current assets of \$0.3 million and an increase in operating liabilities of \$0.1 million.

*Investing Activities.* There were no investing activities for the year ended December 31, 2023.

*Financing Activities.* Net cash provided by financing activities for the year ended December 31, 2023 consisted of net proceeds of \$1.7 million from the 2023 Public Offering as described below, as well as net proceeds of \$0.5 million from the exercise of warrants to purchase shares of our common stock.

### ***Cash Flows for the Year Ended December 31, 2022***

*Operating Activities.* Net cash used in operating activities for the year ended December 31, 2022 was \$15.1 million. Excluding non-cash stock-based compensation expense of \$0.9 million and depreciation and amortization expenses of \$0.2 million, net cash used in operating activities consisted primarily of the net loss for the period of \$13.9 million and an increase in current assets of \$2.9 million which was partially offset by an increase in accounts payable and accrued expenses of \$0.7 million.

*Investing Activities.* Net cash used in investing activities for the year ended December 31, 2022 consisted of a capital expenditure totaling \$21,000 which was related to a research and development equipment purchase.

*Financing Activities.* Net cash provided by financing activities for the year ended December 31, 2022 consisted of net proceeds of \$1.7 million from the 2022 Registered Direct Offering and the 2022 Private Placement, each as described below.

### ***2022 Shelf Registration Statement***

On May 27, 2022, we filed a shelf registration statement on Form S-3 with the SEC, which was declared effective by the SEC on June 14, 2022 (File No. 333-265282) (the “2022 Shelf Registration Statement”), at which time the offering of unsold securities under a previous shelf registration statement on Form S-3 filed with the SEC, which was declared effective by the SEC on June 5, 2019 (File No. 333-231537) (the “2019 Shelf Registration Statement”), was deemed terminated pursuant to Rule 415(a)(6) under the Securities Act. The 2022 Shelf Registration Statement was filed to register the offering, issuance and sale of (i) up to \$110.0 million of our common stock, preferred stock, warrants to purchase common stock or preferred stock or any combination thereof, either individually or in units, (ii) up to \$9.0 million of our common stock under our At The Market Offering Agreement (the “Offering Agreement”), dated as of July 13, 2020, with H. C. Wainwright & Co., LLC (“Wainwright”), pursuant to which we could offer and sell, from time to time, through or to Wainwright, shares of our common stock, which \$9.0 million was subsequently reduced to \$3.0 million pursuant to a prospectus supplement filed with the SEC on July 29, 2022, and (iii) up to 11,895 shares of our common stock pursuant to the exercise of warrants outstanding on May 27, 2022. The \$3.0 million of our common stock that could previously be offered, issued and sold under the Offering Agreement was included in the \$110.0 million of our securities that may be offered, issued and sold. On December 7, 2022, we received written notice from Wainwright that Wainwright had elected, pursuant to Section 8(b) of to terminate the Offering Agreement effective as of December 7, 2022, at which time all \$3.0 million of shares of our common stock remained available for sale thereunder. As a result of the termination of the Offering Agreement, we will not offer or sell any additional shares of our common stock thereunder, and the entire \$3.0 million of shares of our common stock previously available for sale under the Offering Agreement will be available for sale in other offerings pursuant to the 2022 Shelf Registration Statement. Because our public float is less than \$75.0 million, our ability to offer and sell any securities under the 2022 Shelf Registration Statement is currently limited pursuant to Instruction I.B.6 to Form S-3. For so long as our public float is less than \$75.0 million, the aggregate market value of securities we sell pursuant to Instruction I.B.6 to Form S-3 during any 12 consecutive months may not exceed one-third of our public float. The foregoing does not constitute an offer to sell or the solicitation of an offer to buy securities, and shall not constitute an offer, solicitation or sale in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of that jurisdiction.

### ***2022 Registered Direct Offering and 2022 Private Placement***

On November 6, 2022, we entered into a placement agency agreement with Roth Capital Partners, LLC relating to the 2022 Registered Direct Offering and the 2022 Private Placement. In addition, on November 6, 2022, we entered into securities purchase agreements with several institutional and accredited investors pursuant to which we agreed to sell, in a registered direct offering, an aggregate of 40,000 shares of our common stock for gross proceeds of approximately \$2.0 million under the base prospectus contained in the 2022 Shelf Registration Statement and a related prospectus supplement filed with the SEC on November 9, 2022 (the “2022 Registered Direct Offering”). In a concurrent private placement, we also agreed pursuant to the securities purchase agreements to issue to such investors warrants to purchase up to 40,000 shares of our common stock (the “2022 Private Placement”). The 2022 Registered Direct Offering and the 2022 Private Placement closed on November 9, 2022. The net proceeds from the offerings, after deducting the placement agent’s fees and expenses and our offering expenses, and excluding the proceeds, if any, from the exercise of the warrants issued in the offerings, were approximately \$1.7 million.

### ***2023 Public Offering***

On August 3, 2023, we entered into a placement agency agreement with Roth Capital Partners, LLC relating to a best efforts public offering of an aggregate of 175,000 shares of our common stock, together with warrants to purchase up to 175,000 shares of our common stock, for gross proceeds of approximately \$2.1 million (the “2023 Public Offering”). The 2023 Public Offering was made pursuant to a registration statement on Form S-1, as amended (File No. 333-272879), which was declared effective by the SEC on August 2, 2023. The 2023 Public Offering closed on August 7, 2023. The net proceeds from the offering, after deducting the placement agent’s fees and expenses and our offering expenses, and excluding the proceeds, if any, from the exercise of the warrants issued in the offering, were approximately \$1.7 million.

### ***March 2024 Registered Direct Offering and March 2024 Private Placement***

On March 25, 2024, we entered into a securities purchase agreement with a certain institutional and accredited investor pursuant to which we agreed to sell, in a registered direct offering, an aggregate of 75,000 shares of our common stock for gross proceeds of approximately \$0.3 million under the base prospectus contained in the 2022 Shelf Registration Statement and a related prospectus supplement filed with the SEC on March 27, 2024 (the “March 2024 Registered Direct Offering”). In a concurrent private placement, we also agreed pursuant to the securities purchase agreement to issue to such investor warrants to purchase up to 75,000 shares of our common stock at an exercise price of \$3.865 per share (the “March 2024 Private Placement”). The March 2024 Registered Direct Offering and the March 2024 Private Placement closed on March 27, 2024. The net proceeds from the offerings, after deducting the placement agent’s fees and expenses and our offering expenses, and excluding the proceeds, if any, from the exercise of the warrants issued in the offerings, were approximately \$0.2 million.

### ***At the Market Offering***

On April 4, 2024, we entered into the At The Market Offering Agreement with Wainwright, as sales agent, pursuant to which we may offer and sell, from time to time, through Wainwright, shares of our common stock. Under the At The Market Offering Agreement, Wainwright may sell shares by any method deemed to be an “at the market” offering as defined in Rule 415 under the Securities Act, as amended, or any other method permitted by law, including in privately negotiated transactions. We or Wainwright may suspend or terminate the offering of shares upon notice to the other party and subject to other conditions. We will pay Wainwright a commission of 3.0% of the aggregate gross proceeds from each sale of shares under the At The Market Offering Agreement and have agreed to provide Wainwright with customary indemnification and contribution rights. We have also agreed to reimburse Wainwright for certain specified expenses. We are subject to certain restrictions on our ability to offer and sell shares of our common stock under the At The Market Offering Agreement. On April 4, 2024, in connection with the execution of the At The Market Offering Agreement, we filed with the SEC a prospectus supplement (the “Initial ATM Prospectus Supplement”) to the base prospectus contained in the 2022 Shelf Registration Statement, which Initial ATM Prospectus Supplement related to the offering of up to \$2.0 million of shares of the Company’s common stock under the At The Market Offering Agreement. Subsequent to entering into the Offering Agreement, we offered and sold 436,511 shares of common stock for gross proceeds of approximately \$2.0 million and terminated the offering under the Initial ATM Prospectus Supplement on April 19, 2024. The net proceeds from such offering, after deducting commissions and our offering expenses, were approximately \$1.8 million.

On April 19, 2024, we determined to increase the number of shares available for sale under the At The Market Offering Agreement, up to an additional aggregate offering price of approximately \$1.1 million, which shares are being offered and sold pursuant to the 2022 Shelf Registration Statement and a prospectus supplement and accompanying prospectus filed with the SEC on April 19, 2024 (the “Subsequent ATM Prospectus Supplement”). As of September 30, 2024, we offered and sold 334,929 shares of common stock under the Subsequent ATM Prospectus Supplement for gross proceeds of approximately \$1.1 million and after deducting commissions and the Company’s offering expenses, the net proceeds from such offering were approximately \$1.0 million.

### ***April 2024 Registered Direct Offering and April 2024 Private Placement***

On April 18, 2024, we entered into a securities purchase agreement with certain institutional and accredited investors pursuant to which we agreed to sell, in a registered direct offering, an aggregate of 375,000 shares of our common stock for gross proceeds of approximately \$1.2 million under the base prospectus contained in the 2022 Shelf Registration Statement and a related prospectus supplement filed with the SEC on April 19, 2024 (the “April 2024 Registered Direct Offering”). In a concurrent private placement, we also agreed pursuant to the securities purchase agreement to issue to such investors warrants to purchase up to 375,000 shares of our

common stock at an exercise price of \$3.10 per share (the “April 2024 Private Placement”). The April 2024 Registered Direct Offering and the April 2024 Private Placement closed on April 19, 2024. The net proceeds from the offerings, after deducting the placement agent’s fees and expenses and our offering expenses, and excluding the proceeds, if any, from the exercise of the warrants issued in the offerings, were approximately \$0.9 million.

#### ***June 2024 PIPE***

On June 3, 2024, we entered into a securities purchase agreement with a certain institutional and accredited investor pursuant to which we agreed to sell, in a private placement, an aggregate of (i) 180,000 shares of our common stock, (ii) pre-funded warrants to purchase up to 1,629,955 shares of our common stock at an exercise price of \$0.001 per share, (iii) series A warrants to purchase up to 1,809,955 shares of our common stock at an exercise price of \$2.00 per share and (iv) series B warrants to purchase up to 1,809,955 shares of our common stock at an exercise price of \$2.00 per share for gross proceeds of approximately \$4.0 million (the “June 2024 PIPE”). The June 2024 PIPE closed on June 5, 2024. The net proceeds from the offering, after deducting the placement agent’s fees and expenses and our offering expenses, and excluding the proceeds, if any, from the exercises of the warrants issued in the offering, were approximately \$3.3 million.

#### ***October 2024 Private Placement***

On October 8, 2024, we entered into a securities purchase agreement with a certain institutional and accredited investor pursuant to which we agreed to sell, in a private placement, an aggregate of (i) pre-funded warrants to purchase up to 4,597,702 shares of our common stock at an exercise price of \$0.001 per share, (ii) series A warrants to purchase up to 6,407,657 shares of our common stock at an exercise price of \$1.00 per share and (iii) series B warrants to purchase up to 6,407,657 shares of our common stock at an exercise price of \$1.00 per share for gross proceeds of approximately \$4.0 million (the “October 2024 Private Placement”). The October 2024 Private Placement closed on October 10, 2024 (the “Closing Date”). In connection with the October 2024 Private Placement, the Company and the investor agreed to cancel such investor’s series A warrants to purchase 1,809,955 shares of common stock at an exercise price of \$2.00 and series B warrants to purchase 1,809,955 shares of common stock at an exercise price of \$2.00 issued to such investor in connection with the June 2024 PIPE, effective as of the Closing Date. The net proceeds from the offering, after deducting the placement agent’s fees and expenses and our offering expenses, and excluding the proceeds, if any, from the exercises of the warrants issued in the offering, were approximately \$3.4 million.

#### ***Future Capital Requirements***

We expect to continue to incur significant operating expenses in connection with our ongoing activities, including conducting clinical trials, manufacturing and seeking regulatory approval of our drug candidates, prexigebersen, BP1002, BP1003 and BP1001-A. Accordingly, we will continue to require substantial additional capital to fund our projected operating requirements. Such additional capital may not be available when needed or on terms favorable to us. In addition, we may seek additional capital due to favorable market conditions or strategic considerations, even if we believe we have sufficient funds for our current and future operating plan. There can be no assurance that we will be able to continue to raise additional capital through the sale of our securities in the future. Our future capital requirements may change and will depend on numerous factors, which are discussed in detail in the “Risk Factors” section of this prospectus. For more information, see Note 1 to the Unaudited Condensed Consolidated Financial Statements included herein.

#### ***Off-Balance Sheet Arrangements***

As of September 30, 2024, we did not have any material off-balance sheet arrangements.

#### ***Critical Accounting Policies***

Our management’s discussion and analysis of our financial condition and results of operations are based on our financial statements, which have been prepared in conformity with GAAP in the U.S. The preparation of such financial statements has required our management to make assumptions, estimates and judgments that affect the amounts reported in the financial statements, including

the notes thereto, and related disclosures of commitments and contingencies, if any. We consider our critical accounting policies to be those that require the more significant judgments and estimates in the preparation of financial statements, including the following:

**Research and Development Costs** – Costs and expenses that can be clearly identified as research and development are charged to expense as incurred. Advance payments, including nonrefundable amounts, for goods or services that will be used or rendered for future research and development activities are deferred and capitalized. Such amounts will be recognized as an expense as the related goods are delivered or the related services are performed. If the goods will not be delivered, or services will not be rendered, then the capitalized advance payment is charged to expense.

The Company estimates its clinical trial expense accrual each period based on a cost per patient calculation which is derived from estimated start-up costs, clinical trial costs based on the number of patients and length of treatment and clinical study report costs. These services are performed by the Company's third-party clinical research organizations, laboratories and clinical investigative sites. The expense accrual is recorded in research and development expense each period. Amounts that have been prepaid in advance of work performed are recorded in other current assets.

For the year ended December 31, 2023 and for the nine months ended September 30, 2024, we had \$11.6 million and \$5.5 million, respectively, of costs classified as research and development expense.

#### **QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK**

Not applicable.

#### **CHANGES AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE**

None.

## BUSINESS

### Overview

We are a clinical and preclinical stage oncology- and obesity-focused RNAi nanoparticle drug development company utilizing a novel technology that achieves systemic delivery for target-specific protein inhibition for any gene product that is over-expressed in disease. Our drug delivery and antisense technology, called DNAbilize<sup>®</sup>, is a platform that uses P-ethoxy, which is a deoxyribonucleic acid (DNA) backbone modification that is intended to protect the DNA from destruction by the body's enzymes when circulating in vivo, incorporated inside of a lipid bilayer having neutral charge. We believe this combination allows for high efficiency loading of antisense DNA into non-toxic, cell-membrane-like structures for delivery of the antisense drug substance into cells. In vivo, the DNAbilize<sup>®</sup> delivered antisense drug substances are systemically distributed throughout the body to allow for reduction or elimination of target proteins in blood diseases and solid tumors. Through testing in numerous animal studies and dosing in clinical trials, our DNAbilize<sup>®</sup> drug candidates have demonstrated an excellent safety profile. DNAbilize<sup>®</sup> is a registered trademark of the Company.

Using DNAbilize<sup>®</sup> as a platform for drug development and manufacturing, we currently have four drug candidates in development to treat at least five different cancer disease indications. Our lead drug candidate, prexigebersen (pronounced prex" i je ber' sen), which targets growth factor receptor-bound protein 2 ("Grb2"), initially started the efficacy portion of a Phase 2 clinical trial for untreated acute myeloid leukemia ("AML") patients in combination with low-dose cytarabine ("LDAC"). However, the changing landscape of AML treatment has led to removing the combination treatment of prexigebersen and LDAC and replacing it with the combination treatment of prexigebersen and decitabine.

The U.S. Food and Drug Administration ("FDA") granted approval of venetoclax in combination with LDAC, decitabine or azacytidine (the latter two drugs are DNA hypomethylating agents) as frontline therapy for newly diagnosed AML in adults who are 75 years or older, or who have comorbidities precluding intensive induction chemotherapy. We believe this approval of the frontline venetoclax and decitabine combination therapy provides an opportunity for combining prexigebersen with the combination therapy for the treatment of newly diagnosed AML patients. In preclinical efficacy studies, four AML cancer cell lines were treated with three different combinations of decitabine, venetoclax and prexigebersen. Decrease in AML cell viability was the primary measure of efficacy. The triple combination of decitabine, venetoclax and prexigebersen showed significant improvement in efficacy in three of the four AML cell lines. Based on these results, we believe that adding prexigebersen to the treatment combination of decitabine and venetoclax could lead to improved efficacy in AML patients.

Our approved Phase 2 clinical trial currently has three cohorts of patients. The first two cohorts will treat patients with the triple combination of prexigebersen, decitabine and venetoclax. The first cohort will include untreated AML patients, and the second cohort will include relapsed/refractory AML patients. Finally, the third cohort will treat relapsed/refractory AML patients, who are venetoclax-resistant or -intolerant, with the two-drug combination of prexigebersen and decitabine. The full trial design plans have approximately 98 evaluable patients for the first cohort having untreated AML patients with a preliminary review performed after 19 evaluable patients and a formal interim analysis after 38 evaluable patients. The full trial design plans have approximately 54 evaluable patients for each of the second cohort, having relapsed/refractory AML patients, and the third cohort, having AML patients who are venetoclax-resistant or -intolerant, in each case with a review performed after 19 evaluable patients. The study is anticipated to be conducted at up to ten clinical sites in the U.S., and Gail J. Roboz, MD, is the national coordinating Principal Investigator for the Phase 2 trial. Dr. Roboz is a professor of medicine and director of the Clinical and Translational Leukemia Program at the Weill Medical College of Cornell University (the "Weill Medical College") and the New York-Presbyterian Hospital in New York City. The safety run-in of the triple combination of prexigebersen, decitabine and venetoclax of the Phase 2 clinical study was successfully completed. The preliminary data, presented at the 2021 ASH Annual Meeting, showed the treatment was well-tolerated and there were no dose limiting toxicities attributed to prexigebersen.

Our second drug candidate, Liposomal Bcl-2 ("BP1002"), targets the protein Bcl-2, which is responsible for driving cell survival in up to 60% of all cancers. A Phase 1 clinical trial to evaluate the ability of BP1002 to treat refractory/relapsed lymphoma and refractory/relapsed chronic lymphocytic leukemia ("CLL") patients is being conducted at the Georgia Cancer Center, The University of Texas Southwestern and New York Medical College. A total of six evaluable patients are scheduled to be treated over two dose levels with BP1002 monotherapy in a standard 3+3 design. Enrollment has been successfully completed for both dose cohorts, 20 and 40 mg/m<sup>2</sup>. There were no dose-limiting toxicities. On December 11, 2024, we announced that the Phase 1 clinical trial evaluating BP1002 as a treatment for refractory/relapsed lymphoma and refractory/relapsed CLL has discontinued enrollment. This decision was based on enrollment challenges in these niche indications, particularly given the crowded development landscape that includes multiple competing trials.

Preclinical studies suggest that the combination of BP1002 with decitabine is efficacious in venetoclax-resistant cells. A Phase 1/1b clinical trial to investigate the ability of BP1002 to treat refractory/relapsed AML patients, including venetoclax-resistant patients, is being studied. A recent study<sup>1</sup> found that AML patients who had relapsed from frontline venetoclax-based treatment had a very poor prognosis, with a median survival of less than three months. Since venetoclax and BP1002 utilize different mechanisms of action, we believe that BP1002 may be a potential treatment for venetoclax-relapsed AML patients. The Phase 1/1b clinical trial is being conducted at several leading cancer centers in the United States, including the Weill Medical College, The University of Texas MD Anderson Cancer Center (“MD Anderson”), Scripps Health and The University of California at Los Angeles Cancer Center. A total of four BP1002 monotherapy cohorts with three evaluable patients per dosing cohort, in a standard 3+3 design, are scheduled. On October 7, 2024, we announced that the FDA had completed its review of pharmacokinetic/pharmacodynamic (“PK/PD”) data from the first two dosing cohorts (20 and 40 mg/m<sup>2</sup>). Enrollment for the third dosing cohort (60 mg/m<sup>2</sup>) is now complete. We expect to enroll the next planned higher dose of 90 mg/m<sup>2</sup> in the first quarter of 2025. The approved treatment cycle is two doses per week over four weeks, resulting in eight doses administered over twenty-eight days. The Phase 1b portion of the study is expected to commence after completion of BP1002 monotherapy cohorts and will assess the safety and efficacy of BP1002 in combination with decitabine in refractory/relapsed AML patients.

Our third drug candidate, Liposomal STAT3 (“BP1003”), targets the STAT3 protein and is currently in IND enabling studies as a potential treatment of pancreatic cancer, non-small cell lung cancer (“NSCLC”) and AML. Preclinical studies showing BP1003’s ability to inhibit STAT3 protein expression and cancer cell viability had been presented at AACR Annual Meetings. On September 16, 2024, we announced a publication in the peer-reviewed journal, *Biomedicines*, which highlights the therapeutic potential and broad anti-tumor effect of BP1003 in numerous preclinical solid tumor models, including breast, ovarian, and pancreatic cancer. We have successfully completed several IND enabling studies of BP1003 and have one additional IND enabling study to complete. Once the additional study is successfully completed, our goal is to file an IND application and initiate the first-in-humans Phase 1 study of BP1003 in patients with refractory, metastatic solid tumors, including pancreatic cancer and NSCLC.

In addition, a modified product named BP1001-A, our fourth drug candidate, has shown to enhance chemotherapy efficacy in preclinical solid tumor models. Results of the preclinical study were published in the scientific journal *Oncotarget* in July 2020. BP1001-A incorporates the same drug substance as prexigebersen but has a slightly modified formulation designed to enhance nanoparticle properties. A BP1001-A Phase 1/1b clinical trial in patients with advanced or recurrent solid tumors is being conducted at several leading cancer centers in the United States, including MD Anderson, Karmanos Cancer Institute, Mary Crowley Cancer Research and Holy Cross Hospital, Maryland. A total of nine evaluable patients are scheduled to be treated with BP1001-A monotherapy over three dose levels in a standard 3+3 dose escalation design. The first dose cohort consisted of a starting dose of 60 mg/m<sup>2</sup> had been completed, and there were no dose limiting toxicities. Enrollment is now open for patients for the second dose cohort of 90 mg/m<sup>2</sup> which we expect to be complete in the first quarter of 2025 in order to advance to dose level 3. The Phase 1b portion of the study is expected to commence after successful completion of BP1001-A monotherapy cohorts and is intended to assess the safety and efficacy of BP1001-A in combination with paclitaxel in patients with recurrent ovarian or endometrial tumors. Phase 1b studies are also expected to be opened in combination with gemcitabine in Stage 4 pancreatic cancer and combination therapy in breast cancer.

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<sup>1</sup> (Maiti A, Ruasch C, Cortes JE, et.al. Outcomes of relapsed or refractory acute myeloid leukemia after frontline hypomethylating agent and venetoclax regimens. *Haematologica* 2021; 106: 894-898.)

*Development and Treatment for Obesity*

Insulin resistance is the major contributor to obesity, Type 2 diabetes and other related metabolic diseases. Scientific evidence suggests that Grb2 regulates insulin signaling and blood glucose level. On December 19, 2024, we announced the results of our initial preclinical work confirming that BP1001-A affected the insulin pathway and increased insulin sensitivity, thus validating BP1001-A as a potential treatment for obesity in Type 2 diabetes patients. We have initiated animal studies to confirm the efficacy of BP1001-A as a potential treatment for obesity and related metabolic diseases in Type 2 diabetes patients. If successful, we anticipate initiating a first-in-human Phase 1 clinical trial in 2025 to further validate safety, measure pharmacokinetics and establish dosing for potential pivotal trials.

Our DNAbilize® technology-based products are available for out-licensing or partnering. We intend to apply our drug technology template to new disease-causing protein targets to develop new liposomal antisense drug candidates for inclusion in our pipeline that meet scientific, preclinical and commercial criteria and file new patents on these targets. We expect that these efforts will include collaboration with key scientific opinion leaders in the field of study and include developing drug candidates for diseases other than cancer. As we expand our drug development programs, we will look at indications where a systemic delivery is needed and antisense RNAi nanoparticles can be used to slow, reverse or cure a disease, either alone or in combination with another drug.

We are developing a molecular biomarker package to accompany prexigebersen treatment, the goal of which is to identify patients with a genetic profile more likely to respond to treatment thereby improving probability of success for this program. The emerging role of biomarkers has been enhancing cancer development over the past decade and has become a more common companion to many cancer development programs. We expect to develop molecular biomarker packages to accompany our new programs.

We have certain intellectual property as the basis for our current drug products in clinical development, prexigebersen, BP1002, BP1003 and BP1001-A. We are developing RNAi antisense nanoparticle drug candidates based on our own patented technology to treat cancer, obesity and autoimmune disorders where targeting a single protein may be advantageous and result in reduced patient adverse effects as compared to small molecule inhibitors with off-target and non-specific effects. We have composition of matter and method of use intellectual property for the design and manufacture of antisense RNAi nanoparticle drug products.

Our basic drug development concept is to block expression of proteins associated with disease. Messenger RNA (“mRNA”) is essential in the process of creating proteins. We have developed DNAbilize® nanoparticle drug delivery systems to deliver short strands of antisense DNA drugs to cells and block the production of proteins associated with disease progression.

Antisense therapeutics have been in development for over 20 years. However, challenges to antisense therapeutics, such as instability of antisense drugs inside of the body and inefficient delivery of antisense to disease cells, have thwarted antisense therapeutic potential. We believe our DNAbilize® technology, which is the combination of the protected P-ethoxy antisense DNA backbone with the neutral liposome nanoparticle, is the ideal approach for antisense DNA therapeutics because it overcomes the challenges associated with both antisense stability and intracellular delivery. The P-ethoxy modification used in our DNAbilize® technology is completely sulfur free. We avoid using sulfur-containing antisense because it has been associated with causing liver toxicity and life-threatening bleeding and clotting complications. We prefer neutral lipids to cationic lipids for intracellular delivery because encapsulating the antisense DNA inside a neutral charged lipid bilayer facilitates the delivery and transfer of DNA into the cell to be fluid and gentle. DNAbilize® is truly a stand-alone platform because, as demonstrated by our published preclinical and clinical studies, it allows for high doses of drug products to be delivered throughout the entire body while minimizing toxicity. This allows our research and development efforts to focus on drug targets rather than on indications because the DNAbilize® system should not be limited in what types of indications it can treat. As such, we believe that DNAbilize® represents the first ever antisense therapeutic approach that can successfully treat hematological and systemic diseases.



## Strategy

Because of our unique ability to address unmet needs in hematological malignancies, our lead drug candidates focus on cancers of the blood and lymph. Our strategy is to develop prexigebersen, BP1002, BP1003 and BP1001-A for multiple indications where the pathways involving Grb2, Bcl-2 and STAT3, respectively, are utilized to promote cancer growth, survival, angiogenesis and tumor surveillance evasion. Using DNAbilize® technology, we plan to develop therapeutics to a wide range of diseases and disorders independently and in partnership with others. Our strategy includes:

- Developing prexigebersen for treatment of AML in combination therapies.
- Developing BP1002 for refractory/relapsed AML patients, including venetoclax-resistant patients.
- Developing BP1003 for pancreatic and lung cancer.
- Developing BP1001-A for treatment of solid tumors, including ovarian, endometrial and pancreatic cancer.
- Developing BP1001-A for treatment of obesity and related metabolic diseases.
- Expanding DNAbilize® to evaluate targets beyond cancer.
- Establishing DNAbilize® as the antisense drug delivery method of choice by forming partnerships with pharmaceutical and academic clinical research labs.
- Establishing a molecular biomarker package to accompany prexigebersen treatment.

## Overview of Drug Candidates

The historical perspective of cancer treatments has been the use of drugs that affect the entire body. Advances in the past decades have shifted to treating the tumor tissue itself. One of the main strategies in these developments has been targeted therapy, involving drugs that are targeted to block the expression of specific disease-causing proteins while having little or no effect on other healthy tissues. We believe that nucleic acid drug products, specifically antisense, are a promising field of targeted therapy. Development of antisense as cancer drugs, however, has been limited by the lack of a suitable method to deliver antisense drugs to cancer cells with high uptake into the cancer cells without causing toxicity to non-cancer cells. Our patented DNAbilize® neutral-lipid based liposome technology is designed to overcome these limitations. We have published preclinical studies demonstrating that our DNAbilize® technology could efficiently deliver antisense therapeutics to mouse models of hematological malignancies and solid tumors, decrease target proteins production and suppress tumor progression. In addition, to date, no adverse effects attributed to the study drugs have been observed in our cancer clinical trials.

### ***PREXIGEBERSEN***

Prexigebersen is targeted at the protein Grb2, a bridging protein between activated and mutated cellular kinases and the proteins involved in cell propagation, and in particular, a well-known cancer associated switch called Ras protein. When mutations occur that activate these kinases, the cell propagates uncontrollably, via Grb2, and this results in disease progression. Antisense inhibition of Grb2 interrupts the signals between mutated and activated receptors that connect to the Ras protein. This inhibition suppresses cancer cell propagation and does not result in adverse events typically observed with receptor inhibitors or Ras pathway inhibitors. We believe that prexigebersen has the potential to be an ideal combination for any number of cancer therapeutics where the Ras pathway is aberrantly activated and patient fitness is a major concern, such as in AML.

### Indications for Acute Myeloid Leukemia (AML)

**AML - Background and Common Treatments.** AML is the rapid accumulation of immature myeloid cells in the blood, resulting in a drop of the other cell types such as red blood cells and platelets. AML incidence increases with age, with more than 50% of the cases in people aged 60 or older. AML is the most common acute leukemia in adults, and the National Cancer Institute estimated that approximately 20,800 new cases occurred in 2024 (Table 1). The five-year survival rate is approximately 11% in older adults (ages 65+). The Bcl-2 inhibitor venetoclax is approved for newly diagnosed AML patients aged 75 years and older or adults who cannot be treated with intensive induction chemotherapy. Venetoclax is used in combination with LDAC, decitabine or azacitidine. Mutation in the Bcl-2 binding domain, which reduces venetoclax's ability to bind to Bcl-2, has been linked with venetoclax resistance in CLL patients. Such venetoclax resistance may also occur in AML patients. AML remains an area of high unmet need for both the relapsed and the newly diagnosed elderly population who are typically ineligible for induction therapy.

**Table 1. Basic Statistics for AML**

Estimated New Cases in 2024	20,800	% of All New Cancer Cases	1.0%
Estimated Deaths in 2024	11,220	% of All Cancer Deaths	1.8%
		5-year Relative Survival Rate for adults ages $\geq 65$ (2014-2020)	11.2%

**Prexigebersen Development and Treatment for Leukemia.** The safety, pharmacokinetics and efficacy of our lead DNAbilize® antisense drug candidate, prexigebersen, was assessed in patients having AML, CML, myelodysplastic syndrome (MDS) or acute lymphoblastic leukemia (“ALL”) in a Phase 1 trial. The Phase 1 clinical trial was a dose-escalating study to determine the safety and tolerability of escalating doses of prexigebersen. After completion of dose-escalation monotherapy, the safety and toxicity of prexigebersen in combination with LDAC was assessed in patients with refractory/relapsed AML. Additionally, the pharmacokinetics and anti-leukemic effects, including down-regulation of the target Grb2 protein in patient samples, of the drug candidate were determined. Results of the Phase 1 clinical study were published in the scientific journal *Lancet Haematology* in 2018.

#### Phase 1 Clinical Trial

Among the 39 patients enrolled in the study, 12 patients were removed from study before the end of cycle 1 because of disease progression or death, without dose-limiting toxicity, and were replaced per protocol guidelines. The approved prexigebersen treatment cycle is two doses per week over four weeks, resulting in eight doses administered over 28 days. Among the 27 evaluable patients, 21 patients were treated with escalating doses of prexigebersen monotherapy and six patients were treated with prexigebersen plus LDAC (Figure 1). The dose-limiting toxicity was not reached in the prexigebersen monotherapy cohorts, up to the maximum dose of 90 mg/m<sup>2</sup>. The prexigebersen plus LDAC combination was also well tolerated, with a toxicity profile similar to that of prexigebersen monotherapy, including the absence of identifiable dose-limiting toxicity. Furthermore, five patients receiving prexigebersen plus LDAC combination experienced at least a 50% reduction in bone marrow blasts; two patients achieved a CR, one achieved CRi, and two had stable disease. These results demonstrate the potential anti-leukemic activity of prexigebersen and its potential to stabilize patients for extended treatments.

A flow cytometry scientific assay was used to provide critical proof that DNAbilize® neutral liposome delivery technology delivered the drug substance to the cell and was able to transport it across the cell membrane into the interior to block cellular production of the Grb2 protein. The extent by which prexigebersen inhibited the expression of the target Grb2 protein and the expression of phosphorylated extracellular signal related kinase (pERK), a protein downstream of the Ras protein, in patient samples was investigated. By the end of the treatment, prexigebersen decreased Grb2 protein levels in 10 out of 12 samples (83%) tested (average reduction 50%) compared to the baseline Grb2 levels prior to treatment. Similarly, by the end of the treatment, prexigebersen decreased pERK levels in seven out of 12 samples (58%) tested (average reduction 52%) compared to the baseline pERK levels prior to treatment. Additionally, pharmacokinetics of prexigebersen demonstrated a half-life at 60 mg/m<sup>2</sup> of 30 hours, significantly better than the 90 mg/m<sup>2</sup> dose. The final analysis of these data, along with the demonstrated reductions in bone marrow blasts, suggested that 60 mg/m<sup>2</sup> is the appropriate dose for use in the Phase 2 trial.

*Phase 2 Clinical Trials*

Results from the Phase 1b clinical trial demonstrated it is safe to add prexigebersen to LDAC, which appears to yield better response rates in this AML patient population. A Phase 2 study was initiated to assess the efficacy of prexigebersen plus LDAC in newly diagnosed AML patients. Thirty patients were enrolled and 17 patients were deemed evaluable (Table 2). The interim data, presented at the 2018 ASH Annual Meeting, showed that 11 (65%) of the 17 evaluable patients had a response, including five (29%) who achieved CR, including one CR<sub>i</sub> and one morphologic leukemia free state, and six (35%) stable disease responses, including two patients who had greater than a 50% reduction in bone marrow blasts. The efficacy data from the 17 evaluable patients was very favorable compared to the reported CR, CR<sub>p</sub> and CR<sub>i</sub> rates of 7 to 13% with LDAC treatment alone. Importantly, through investigation by the principal investigators, it was observed that 68% of patients were secondary AML patients, a difficult class to treat.

Results to date have shown prexigebersen, with its efficacy and excellent safety profile, to be an effective combination candidate with frontline therapy. However, the changing landscape of AML treatment has led to amendment of the Phase 2 clinical study by removing the combination treatment of prexigebersen and LDAC and replacing it with the combination treatment of prexigebersen and decitabine.

We believe the approval of the frontline venetoclax and decitabine combination therapy provides an opportunity for combining prexigebersen with the combination therapy for the treatment of newly diagnosed AML patients. Preclinical testing of prexigebersen with venetoclax and decitabine demonstrated the potential to enhance efficacy of the frontline treatment combination. The triple combination of prexigebersen, venetoclax and decitabine showed significant improvement in decreasing the viability of three of the four AML cell lines tested. Bio-Path’s approved amended Stage 2 for this Phase 2 clinical trial has three cohorts of patients. The first two cohorts will treat patients with the triple combination of prexigebersen, decitabine and venetoclax with the first cohort including untreated AML patients and the second cohort including relapsed/refractory AML patients. Finally, the third cohort will treat relapsed/refractory AML patients who are venetoclax-resistant or -intolerant with the two-drug combination of prexigebersen and decitabine.

The safety run-in study of the two-drug combination of prexigebersen and decitabine as well as that of the triple combination of prexigebersen, decitabine and venetoclax were successfully completed. The preliminary data, presented at the 2021 ASH Annual Meeting, showed the treatments were well-tolerated and there were no dose limiting toxicities attributed to prexigebersen.

On June 3, 2024, we announced additional interim data for the first two cohorts of the Phase 2 clinical trial (Tables 2 and 3). In cohort 1, 31 newly diagnosed patients were enrolled; 20 evaluable patients with a median age of 75 years, treated with at least one cycle of prexigebersen, decitabine and venetoclax, had adverse-risk or secondary AML evolved from myelodysplastic syndromes, chronic myelomonocytic leukemia or treatment-related AML. Fifteen patients (75%) achieved complete remission, CR with CR<sub>h</sub>, or CR<sub>i</sub>. One patient achieved partial remission (“PR”), three patients achieved stable disease, and one patient had toxicity attributed to decitabine and venetoclax treatment (Table 2).

**Table 2. Interim data of evaluable newly diagnosed AML patients who were treated with the prexigebersen + decitabine + venetoclax combination treatment**

<b>Response to therapy</b>	<b>Prexigebersen + decitabine + venetoclax (n = 20)</b>
CR/CR <sub>i</sub> /CR <sub>h</sub>	15 (75%)
PR	1 (5%)
Stable Disease	3 (15%)
Other <sup>a</sup>	1 (5%)

<sup>a</sup>Toxicity attributed to decitabine and venetoclax

In cohort 2, 40 relapsed/refractory patients were enrolled; 23 evaluable patients with a median age of 63 years, treated with at least one cycle of prexigebersen, decitabine and venetoclax, had adverse-risk or secondary AML. Twelve patients (55%) achieved CR/CRi/CRh, one patient achieved PR, eight patients achieved stable disease and two patients had progressive disease or treatment failure (Table 3).

**Table 3. Interim data of evaluable refractory/relapsed AML patients who were treated with the prexigebersen + decitabine + venetoclax combination treatment**

<b>Response to therapy</b>	<b>Prexigebersen + decitabine + venetoclax (n = 23)</b>
No. of CR + CRi + CRh	12 (52%)
No. of PR	1 (4%)
No. of stable disease	8 (35%)
No. of progressive disease or treatment failure	2 (9%)

Among the evaluable patients of both cohorts, adverse events were consistent with those expected with decitabine and venetoclax and/or AML, including fatigue (72%), anemia (60%) and neutropenia (49%), while the most frequent severe adverse events were febrile neutropenia (26%) and sepsis (5%). The interim analysis data was selected as an oral presentation in the 2024 ASCO Annual Meeting and as a poster presentation in the 2024 EHA Annual Meeting. Based on this interim data, we expect to continue enrollment of up to 98 and 54 evaluable patients for cohorts 1 and 2, respectively and plan to pursue FDA expedited programs for Fast Track designation. We are evaluating whether to seek to expand Stage 2 of the Phase 2 clinical trial in Europe. We expect to complete enrollment in cohorts 1 and 2 in 2026.

### ***BP1002***

BP1002, also known by its scientific name as Liposomal Bcl-2, is our second liposome delivered antisense drug candidate. BP1002 is intended to target lymphoma, CLL, AML and certain solid tumor markets. We believe that BP1002 has the potential to treat 40 to 60% of solid tumors.

Bcl-2 is a protein that is involved in regulating apoptosis, or programmed cell death. Apoptosis is a physiologic mechanism of cell turnover by which cells actively commit suicide in response to aberrant external signals. Over-expression of Bcl-2 prevents the induction of apoptosis in response to cellular insults such as treatment with chemotherapeutic agents. Bcl-2, initially discovered in transformed follicular lymphoma (“FL”) was found to contribute to the pathophysiology of various subtypes of non-Hodgkin’s lymphoma (“NHL”).

#### *BP1002 - Development and Treatment for lymphoma*

Therapies that directly and specifically block or inhibit protein synthesis of Bcl-2 could be transformative for NHL. The Bcl-2 inhibitor venetoclax was approved by the FDA for the treatment of patients with CLL and small lymphocytic leukemia (“SLL”). However, treatment with venetoclax can lead to the development of drug resistance, resulting in disease recurrence. One of the proposed mechanisms of venetoclax resistance is acquired mutations in Bcl-2, which reduce venetoclax’s ability to bind and inhibit Bcl-2. Because BP1002 activity is based on blocking the Bcl-2 messenger RNA and BP1002 targets Bcl-2 at a site different from venetoclax, we expect BP1002 to overcome such venetoclax resistance mechanism and be an effective approach for patients who have relapsed from venetoclax.

The Phase 1 clinical trial evaluating the ability of BP1002 to treat refractory/relapsed lymphoma and refractory/relapsed CLL patients is being conducted at the Georgia Cancer Center, The University of Texas Southwestern and New York Medical College. Initially, a total of six evaluable patients are scheduled to be treated with BP1002 monotherapy in a standard 3+3 design. The approved treatment cycle is two doses per week over four weeks, resulting in eight doses administered over twenty-eight days. Enrollment for both dose cohorts, 20 and 40 mg/m<sup>2</sup>, has been successfully completed. There were no dose limiting toxicities.

On December 11, 2024, we announced that the Phase 1 clinical trial evaluating BP1002 as a treatment for refractory/relapsed lymphoma and refractory/relapsed chronic lymphocytic leukemia has discontinued enrollment. This decision was based on enrollment challenges in these niche indications, particularly given the crowded development landscape that includes multiple competing trials.

#### *BP1002 - Development and Treatment for AML*

The Bcl-2 inhibitor venetoclax is used in frontline combination therapies to treat elderly AML patients; however, venetoclax resistance has been observed. A recent study<sup>2</sup> found that AML patients who had relapsed from frontline venetoclax-based treatment had a very poor prognosis, with a median survival of less than three months. Since venetoclax and BP1002 utilize different mechanisms of action, we believe that BP1002 may be a potential treatment for venetoclax-relapsed AML patients. Preclinical studies, presented at the 2021 American Association for Cancer Research Annual Meeting, suggest that the combination of BP1002 with decitabine is efficacious in venetoclax-resistant AML cells. A Phase 1/1b clinical trial to investigate the ability of BP1002 to treat refractory/relapsed AML patients, including venetoclax-resistant patients, is being conducted at several leading cancer centers in the United States, including the Weill Medical College, MD Anderson Cancer Center, Scripps Cancer Center and The University of California at Los Angeles Cancer Center. Gail J. Roboz, M.D., is serving as the national coordinating Principal Investigator for the Phase 1/1b trial. Gary Schiller, M.D., The University of California at Los Angeles Cancer Center, Maro Ohanian, D.O., Department of Leukemia, University of Texas MD Anderson Cancer Center, and David Hermel, M.D., Scripps Health, will each serve as Principal Investigators.

A total of three evaluable patients per dosing cohort are scheduled to be treated with BP1002 monotherapy in a standard 3+3 design. The approved treatment cycle is two doses per week over four weeks for a total of eight doses administered over 28 days. On October 7, 2024, we announced that the FDA had completed its review of PK/PD data from the first two dosing cohorts (20 and 40 mg/m<sup>2</sup>) and that the enrollment for the third dosing cohort (60 mg/m<sup>2</sup>) is now complete. We expect to enroll in the next planned higher dose of 90 mg/m<sup>2</sup> in the first quarter of 2025. The Phase 1b portion of the study is expected to commence after completion of BP1002 monotherapy cohorts and will assess the safety and efficacy of BP1002 in combination with decitabine in refractory/relapsed AML patients.

#### **BP1003**

BP1003 is our third liposome delivered antisense drug candidate. BP1003 is a DNAbilize<sup>®</sup> RNAi nanoparticle containing antisense DNA targeting STAT3, whose elevated expression/activity is associated with a poorer survival outcome for patients with solid tumors, including those of gastric cancer, lung cancer, hepatic cancer, osteosarcoma, prostate cancer and pancreatic adenocarcinoma (“PDAC”). We believe that a therapeutic that shuts down the STAT3 protein can have significant clinical impact for solid tumors that have elevated expression/activity of STAT3.

Our lead indication for BP1003 is pancreatic cancer due to the severity of this disease and the lack of effective, life-extending treatments. It is estimated that less than 11% of PDAC patients survive beyond five years, and it is projected that by 2030, PDAC will become the second most lethal cancer behind lung cancer. Treatment of the disease is hampered by the location of the pancreas, which is difficult to reach with conventional therapies and the fibrotic nature of the tumors, which protects them from penetration by chemotherapeutics. We believe a novel and unconventional therapeutic is needed to overcome these barriers to treatment.

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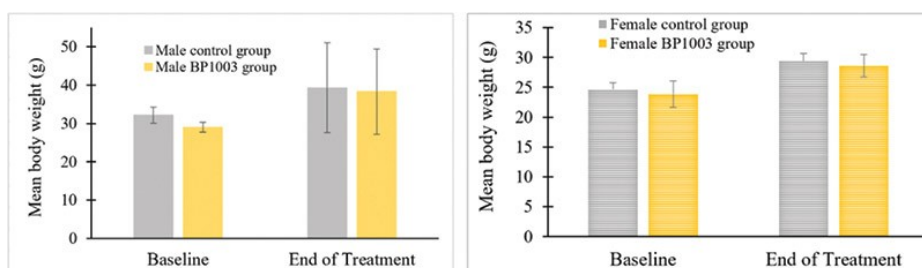
<sup>2</sup> (Maiti A, Ruasch C, Cortes JE, et.al. Outcomes of relapsed or refractory acute myeloid leukemia after frontline hypomethylating agent and venetoclax regimens. *Haematologica* 2021; 106: 894-898.)

While competition for therapeutics that target the STAT3 pathway exists, the competition for specific STAT3 inhibitors is very small. Many peptides designed to bind to STAT3 suffered from poor intrinsic pharmacokinetic properties, including poor cellular permeability and lack of stability in vivo, which curtailed their further development. Even second-generation peptidomimetics have failed to overcome these limitations. Most compounds under development target the pathway upstream of STAT3, such as the JAK2 kinase. However, lack of efficacy of the JAK2 kinase inhibitors was observed in PDAC clinical studies. Ionis Pharmaceuticals, Inc. has developed an antisense DNA-based STAT3 inhibitor called IONIS-STAT3-2.5Rx. It is being evaluated in clinical trials by AstraZeneca under the name AZD9150 for solid tumors and NHL. However, due to the toxicity of the DNA chemistry, thrombocytopenia continues to limit the systemic delivery and efficacy of such compounds for the treatment of cancer. We believe BP1003 avoids these complications.

We hypothesized that the natural lipid delivery vesicle would have unique characteristics that would allow for penetration of the fibrotic stroma to reach the PDAC cells. Our preclinical work demonstrated that BP1003 was successful in crossing the scar tissue matrix and delivering antisense drug into the tumor tissue. Results of our preclinical work were published in the scientific journal *Biomedicines* in August 2024. The publication highlights the therapeutic potential and broad anti-tumor effect of BP1003 in numerous preclinical solid tumor models, including breast, ovarian, and pancreatic cancer. BP1003 enhanced the sensitivity of breast and ovarian cancer cell lines to chemotherapy, such as paclitaxel and 5-fluorouracil. Moreover, ex vivo and in vivo patient-derived models of PDAC showed reduced tissue viability and tumor volume with BP1003 and gemcitabine combination treatments. In addition to directly affecting tumor cells, BP1003 can modulate the tumor microenvironment by suppressing monocyte differentiation into anti-inflammatory M2 macrophages.

We have successfully completed several IND enabling studies of BP1003, including safety. Body weight was used as an indicator of BP1003 safety in rodents. Mice received saline or twice weekly injections of BP1003 for four weeks. There was no difference in body weight between control mice and BP1003-treated mice (Figure 1). We have one additional IND enabling study to complete. Once the additional study is successfully completed, our goal is to file an IND and initiate the first-in-humans Phase 1 study of BP1003 in patients with refractory, metastatic solid tumors, including pancreatic cancer and NSCLC.

**Figure 1. No difference in mean body weight was observed between control groups and BP1003-treated groups**



We believe that the excellent safety profile of the DNabilize® chemistry, the novel lipid formula that allows for penetration of the tumor stroma, and the ability to target a single protein with precision, makes BP1003 an ideal candidate for combination with approved treatments to extend survival while maintaining quality of life for the patient.

#### ***BP1001-A***

Data supports a prominent role of Grb2 in the progression of solid tumors, and overexpression of Grb2 has been associated with chemosensitivity, poor prognosis and advanced disease in several malignancies including gynecologic malignancies.

*Indications for Solid Tumors (e.g., Ovary, Endometrium)*

Ovarian cancer is one of the most common types of gynecologic malignancy. In the U.S., 19,680 new cases of and 12,740 deaths from ovarian cancer were expected in 2024 (Table 4). According to the Ovarian Cancer Research Alliance, approximately 70% of patients diagnosed with ovarian cancer will have a recurrence. Recurrent ovarian cancer is treatable but rarely curable. The response rates to second-line chemotherapy are low and differ by platinum-sensitivity status: 20 to 25% for platinum-sensitive cases and 10 to 20% for platinum-resistant cases<sup>3</sup>. Given the poor outcomes of treatment for ovarian cancer, novel drug treatments are urgently needed.

**Table 4. Basic Statistics for Ovarian Cancer**

Estimated New Cases in 2024	19,680	% of All New Cancer Cases	1.0%
Estimated Deaths in 2024	12,740	% of All Cancer Deaths	2.1%

Endometrial cancer is the most common gynecologic malignancy in the U.S. In the U.S., 67,880 new cases of and 13,250 deaths from endometrial cancer were expected in 2024 (Table 5). The majority of cases are diagnosed at an early stage and are amenable to treatment with surgery alone. However, approximately 38 to 67% of advanced stage endometrial cancers will recur<sup>4</sup>. Recurrent endometrial cancer is incurable with currently available standard therapies. The median survival for patients with recurrent endometrial carcinoma is approximately 12 to 15 months<sup>5</sup>. Novel drug treatments for recurrent endometrial carcinoma are urgently needed.

**Table 5. Basic Statistics for Endometrial Cancer**

Estimated New Cases in 2024	67,880	% of All New Cancer Cases	3.4%
Estimated Deaths in 2024	13,250	% of All Cancer Deaths	2.2%

*Development and Treatment for Ovarian and Endometrial cancer*

Grb2 may be a novel potential therapeutic target for ovarian and endometrial cancer, and BP1001-A may provide clinical benefit against these gynecologic malignancies. BP1001-A is a modified drug product with the same drug substance as prexigebersen but includes formulation enhancements to produce smaller drug nanoparticles. The goal of this product enhancement is to produce smaller drug nanoparticles that can pass through vasculature pore spaces, thereby enabling release of the drug product into the interior of the tumor to enhance drug effectiveness. Results of the preclinical study, conducted in collaboration with leaders in the field of ovarian cancer at MD Anderson Cancer Center, were published in the scientific journal *Oncotarget* in July 2020. BP1001-A effectively penetrated ovarian tumors and decreased target Grb2 protein level in preclinical ovarian and endometrial tumor models. BP1001-A was demonstrated to reduce tumor burden both as a monotherapy and in combination with paclitaxel, a therapy commonly used to treat patients with advanced ovarian or endometrial cancer.

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<sup>3</sup> (Soyama H, Takano M, Miyamoto M, et al. Factors favouring long-term survival following recurrence in ovarian cancer. *Mol Clin Oncol*. 2017; 7: 42-46.)

<sup>4</sup> (Huijgens ANJ, Merten HJMM. Factors predicting recurrent endometrial cancer. *Facts Views Vis Obgyn*. 2013; 5: 179-186.)

<sup>5</sup> (Brooks RA, Fleming GF, Lastra RR, et al. Current recommendations and progress in endometrial cancer. *CA Cancer J Clin* 2019; 69: 258-279.)

A Phase 1/1b clinical trial of BP1001-A in patients with advanced or recurrent solid tumors has been initiated. The dose escalation portion of the Phase 1/1b clinical trial is ongoing at several leading cancer centers in the United States, including MD Anderson, The Mary Crowley Cancer Research Center, and Karmanos Cancer Center. Initially, a total of nine evaluable patients are scheduled to be treated with BP1001-A monotherapy in a standard 3+3 design, with a starting dose of 60 mg/m<sup>2</sup> and continuing with 90 mg/m<sup>2</sup> and 135 mg/m<sup>2</sup>. The approved treatment cycle is two doses per week over four weeks, resulting in eight doses administered over 28 days. The Phase 1b portion of the study is expected to commence after successful completion of BP1001-A monotherapy cohorts and is intended to assess the safety and efficacy of BP1001-A in combination with paclitaxel in patients with recurrent ovarian or endometrial tumors.

The first dose cohort of BP1001-A in the Phase 1/1b study had been successfully completed. Three patients were enrolled into the first dose cohort of BP1001-A at three different centers in the study, including one patient with hepatic lesions (and lung metastases) and two with advanced gynecologic lesions. All three patients had undergone extensive previous chemotherapies and/or surgeries for their disease prior to enrollment in this study. No patient experienced any treatment related adverse events or any adverse events deemed related to the study drug. Enrollment is now open for patients for the second dose cohort of 90 mg/m<sup>2</sup> which we expect to be complete in the first quarter of 2025 in order to advance to dose level 3. The Phase 1b portion of the study is expected to commence after successful completion of BP1001-A monotherapy cohorts and is intended to assess the safety and efficacy of BP1001-A in combination with paclitaxel in patients with recurrent ovarian or endometrial tumors. Phase 1b studies are also expected to be opened in combination with gemcitabine in Stage 4 pancreatic cancer and combination therapy in breast cancer.

#### *Indications for Triple Negative Breast Cancer (TNBC) and Inflammatory Breast Cancer (IBC)*

*TNBC and IBC - Background and Common Treatments.* Approximately 15 to 20% of breast cancers fall into the category of triple-negative. TNBC tumors do not express estrogen receptors, progesterone receptors, and low human epidermal growth factor receptor 2 (“HER2”). These negative indicators mean that the growth of the cancer is not supported by the hormones estrogen and progesterone, or by the presence of HER2 receptors. Therefore, TNBC does not respond to hormonal therapy or therapies that target HER2 receptors. In addition, TNBC tumors are very aggressive. IBC is a rare and very aggressive type of breast cancer that accounts for 2 to 5% of all breast cancers. A lack of targeted treatments for these types of breast cancer has led to development of new therapeutics currently in clinical trials. Overexpression of receptor tyrosine kinases has been reported for TNBC and IBC. Since Grb2 is vital in the cancer signaling of receptor tyrosine kinases, the Company and collaborators at MD Anderson Cancer Center are interested in developing BP1001-A as a potential treatment for TNBC and IBC.

#### *Development and Treatment for Obesity*

The disease pathology leading to obesity suggests that BP1001-A has the potential to treat insulin resistance, a major contributor to obesity, Type 2 diabetes and other related metabolic diseases. Patients diagnosed with Type 2 diabetes are at high risk of developing life-threatening co-morbidities and often experience a poor quality of life. Lowering blood glucose levels is the principal goal in the treatment of patients with Type 2 diabetes. One potential method to manage Type 2 diabetes is to reduce body weight. Much success in weight loss has been reported for obese patients who are taking weight loss medication but these medications are not as effective in inducing weight loss in obese patients who have Type 2 diabetes. Therefore, an alternative method of lowering blood glucose level is still needed for obese patients who have Type 2 diabetes.

Insulin lowers blood glucose level by activating the phosphoinositol-3 kinase (PI3K)/AKT pathway. However, this insulin pathway is dysfunctional in obese patients who have Type 2 diabetes. Literature suggests that Grb2 is an inhibitor of the insulin/PI3K/AKT pathway. Upregulation of the Grb2 gene has been reported for patients with Type 2 diabetes. Knockdown of Grb2 expression enhanced insulin-induced AKT activity and glucose uptake in myoblasts and hepatoma cells. Furthermore, insulin sensitivity was restored in Grb2 heterozygous knockout mice fed on high fat-induced diet. We expect that by downregulating Grb2 expression, BP1001-A will lower blood glucose level by enhancing insulin-mediated AKT activation and glucose uptake and storage.

On December 19, 2024, we announced results of our initial preclinical work. BP1001-A, by decreasing Grb2 expression, increased the levels of phosphorylated AKT and phosphorylated FOXO-1 (a downstream AKT effector) in myoblast and hepatoma cells in the presence of insulin. These preliminary data confirmed that BP1001-A affected the insulin/PI3K/AKT pathway and increased insulin sensitivity, thus validating BP1001-A as a potential treatment for obesity in Type 2 diabetes patients. We have initiated animal studies to confirm the efficacy of BP1001-A as a potential treatment for obesity and related metabolic diseases in



Type 2 diabetes patients. If successful, we anticipate initiating a first-in-human Phase 1 clinical trial in 2025 to further validate safety, measure pharmacokinetics and establish dosing for potential pivotal trials.

### ***DNABILIZE***<sup>®</sup>

DNabilize<sup>®</sup> technology is available for out-licensing. We intend to apply our drug delivery technology template to new disease-causing protein targets to develop new liposomal antisense drug candidates for inclusion in our pipeline that meet scientific, preclinical and commercial criteria and file new patents on these targets. We expect that these efforts will include collaboration with scientific key opinion leaders in the field of study and include developing drug candidates for diseases other than cancer. A significant amount of capital is expected to be allocated to in-license promising protein targets that can be developed as new liposomal antisense drug candidates. As we expand, we will look at indications where a systemic delivery is needed and antisense can be used to slow, reverse or cure a disease, either alone or in combination with another drug. Our patent portfolio currently includes five issued patents in the U.S. that protect the platform technology for DNabilize<sup>®</sup>, the Company's novel RNAi nanoparticle drugs. We plan to continue our efforts to build protection around our technology as it safeguards our platform technology and target-specific technology, is a deterrent to would-be competitors and creates value around our core competencies.

We are interested in pursuing a wide-ranging, proactive licensing program to include co-development of specific liposomal antisense drug candidates, sub-licensing our delivery template for outside development of liposomal antisense drug candidates or out-licensing a partially-developed drug candidate for final development and marketing.

### **Research and Development**

Our research and development expense primarily consists of third-party clinical, preclinical and manufacturing development activities, salaries and benefits expense and stock-based compensation. As we advance and expand our pipeline of drug candidates, we anticipate our research and development expenses will continue to increase in conjunction with these activities. Research and development expenses incurred during the years ended December 31, 2023 and during the nine months ended September 30, 2024 were \$11.6 million and \$5.5 million, respectively.

### **Manufacturing**

We do not own or operate, and currently have no plans to establish, any manufacturing facilities. Accordingly, we have no ability to internally manufacture the drug candidates that we need to conduct our clinical trials. For the foreseeable future, we expect to continue to rely on third-party manufacturers and other third parties to produce, package and store sufficient quantities of our drug candidates and any future drug candidates for use in our clinical trials. We have entered into agreements with third-party manufacturers for the manufacture of our drug requirements, including agreements for the manufacture of prexigebersen for use in our Phase 2 clinical trial in AML, as well as agreements for the manufacture of BP1002, BP1003 and BP1001-A for use in our Phase 1 clinical trials. However, we may face various risks and uncertainties in connection with our reliance on third-party manufacturers, as discussed in "Risk Factors" of this prospectus under the heading "Risks Related to Manufacturing Our Drug Candidates." If the FDA or other regulatory agencies approve any of our drug candidates for commercial sale, we expect that we would continue to rely, at least initially, on third-party manufacturers to produce commercial quantities of such approved drug candidates. However, we may in the future elect to manufacture certain of our drug candidates in our own manufacturing facilities. If we do so, we will require substantial additional funds and need to recruit qualified personnel in order to build or lease and operate any manufacturing facilities.

### **Sales and Marketing**

We currently do not have any commercial drug products or an organization for the sales and marketing of pharmaceutical products. In order to successfully commercialize any drug candidates that may be approved in the future by the FDA or comparable foreign regulatory authorities, we must build our sales and marketing capabilities or make arrangements with third parties to perform these services. For certain drug candidates in selected indications where we believe that an approved product could be commercialized by a specialty sales force that calls on a limited but focused group of physicians, we may commercialize these products ourselves. However, in therapeutic indications that require a large sales force selling to a large and diverse prescribing population, we may enter into arrangements with other companies for commercialization. If we are unable to establish adequate sales, marketing and distribution capabilities, whether independently or with third parties, we may not be able to generate product revenue and may not become profitable.

## **Intellectual Property**

Patents, trademarks, trade secrets, technology, know-how and other proprietary rights are important to our business. Our success depends in large part on our ability to obtain and maintain patent protection both in the U.S. and in other countries for our drug candidates and on our ability to operate without infringing the proprietary rights of third parties. Our ability to protect our drug candidates from unauthorized or infringing use by third parties depends in substantial part on our ability to obtain and maintain valid and enforceable patents.

We rely on trade secrets to protect our technology, especially where we do not believe patent protection is appropriate or obtainable. However, trade secrets are difficult to protect. In order to protect our proprietary technology and processes, we also rely in part on confidentiality and intellectual property assignment agreements with our corporate partners, employees, consultants, outside scientific collaborators, sponsored researchers and other advisors. These agreements may not effectively prevent disclosure of confidential information nor result in the effective assignment to us of intellectual property, and may not provide an adequate remedy in the event of unauthorized disclosure of confidential information or other breaches of the agreements. In addition, others may independently discover our trade secrets and proprietary information, and in such case we could not assert any trade secret rights against such party. To the extent that we enter into out-license and in-license agreements in the future, our success will depend in part on the ability of our licensors to obtain, maintain and enforce patent protection for their intellectual property, in particular, any patents to which we secure exclusive rights.

We have expanded our intellectual property portfolio by filing patent applications that are applicable to our technology and business strategy. Our patent portfolio currently includes seven issued patents in the U.S. and sixty-one issued patents in foreign jurisdictions. We have three additional pending patent applications in the U.S. and five additional allowed patent application in a foreign jurisdiction. Further, we have pending patent applications in key foreign jurisdictions across our six families of applications. We continue our efforts to build protection around our technology as it safeguards our platform technology and target-specific technology, is a deterrent to would-be competitors and creates value around our core competencies.

There can be no assurances that patents related to our existing patent applications or applications we may file in the future will be issued or that any issued patents will provide meaningful protection for our drug candidates, which could materially and adversely affect our competitive business position, business prospects and financial condition.

In the U.S., individual patents extend for varying periods of time depending on the date of filing of the patent application or the date of patent issuance. Generally, patents issued in the U.S. are effective for 20 years from the earliest non-provisional filing date. In addition, a patent term can sometimes be extended to recapture a portion of the term effectively lost during the FDA's regulatory review period; however, the restoration period cannot be longer than five years, and the total patent term cannot exceed 14 years following FDA approval.

## **Employees**

We currently employ ten full-time employees. We also have contractual relationships with additional professionals who perform certain medical officer, regulatory, drug development and administrative duties. We believe relations with such professionals and employees are good.

## **Competition**

We are engaged in segments of the pharmaceutical and biotechnology industry that are highly competitive and characterized by rapid and significant technological change. Many large pharmaceutical and biotechnology companies, academic and research institutions, governmental agencies and other public and private research organizations are pursuing the development of novel drugs that target AML, MDS, lymphoma, ovarian and endometrial cancer, pancreatic cancer, and other cancers generally. We face, and expect to continue to face, intense and increasing competition as new products enter the market and advanced technologies become available. Our competitors may discover, develop or commercialize products or other novel technologies that are more effective, safer or less costly than our drug candidates. Our competitors may also obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for our drug candidates.

Many of our competitors have:

- significantly greater capital, technical and human resources than we have and may be better equipped to discover, develop, manufacture and commercialize drug candidates;
- more experience in drug discovery, development and commercialization, obtaining regulatory approvals and manufacturing and marketing pharmaceutical products;
- drug candidates that have been approved or are in late-stage clinical development; and/or
- collaboration arrangements in our target markets with leading companies and research institutions.

Mergers and acquisitions in the pharmaceutical and biotechnology industry 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, establishing clinical trial sites and patent registration for clinical trials, and acquiring technologies complementary to, or necessary for, our drug candidates and programs.

Competitive products and technological developments may render our drug candidates noncompetitive or obsolete before we can recover the expenses of developing and commercializing our drug candidates. Furthermore, the development of new treatment methods and/or the widespread adoption or increased utilization of any vaccine for the diseases we are targeting could render our drug candidates noncompetitive, obsolete or uneconomical. If we successfully develop and obtain approval for any of our drug candidates, we will face competition based on the safety and effectiveness of our drug candidates, the timing of their entry into the market in relation to competitive products in development, the availability and cost of supply, marketing and sales capabilities, reimbursement coverage, price, patent position and other factors. If we successfully develop drug candidates but those drug candidates do not achieve and maintain market acceptance, our business will not be successful.

## **Government Regulation**

### ***Overview***

Government authorities in the U.S., at the federal, state and local level, and other countries extensively regulate, among other things, the research, development, testing, manufacture, labeling, record keeping, packaging, promotion, storage, advertising, distribution, marketing and export and import of products such as those we are developing. The nature and extent to which such regulations will apply to us will vary depending on the nature of any drug candidates we develop. We anticipate that all of our drug candidates will require regulatory approval by governmental agencies prior to commercialization. This process and subsequent compliance with appropriate federal, state, local, and foreign statutes and regulations will require the expenditure of substantial time and financial resources.

### ***U.S. Drug Development Process***

In the U.S., drugs are subject to rigorous regulation by the FDA under the Federal Food, Drug and Cosmetic Act (the “FDCA”), and implementing regulations, as well as other federal and state statutes. Failure by us or our collaborators to comply with the applicable U.S. requirements at any time during the drug candidate development process, approval process or after approval, may subject us to administrative or judicial sanctions. These sanctions could include the FDA’s refusal to approve pending applications, license suspension or revocation, withdrawal of an approval, a clinical hold, warning letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, civil penalties or criminal prosecution. Any agency or judicial enforcement action could have a material adverse effect on us.

The process required by the FDA before a new drug may be marketed in the U.S. generally involves the following:

- completion of preclinical laboratory tests, animal studies and formulation studies according to FDA’s Good Laboratory Practice regulations;

- submission of an IND, which must become effective before human clinical trials may begin and which must include approval by an institutional review board at each clinical site before the trials are initiated;
- performance of adequate and well-controlled human clinical trials according to FDA's Good Clinical Practice ("GCP") regulations to establish the safety and efficacy of the proposed drug for its intended use;
- submission to, and acceptance by, the FDA of a new drug application (an "NDA");
- completion of an FDA inspection of the manufacturing facility or facilities at which the drug is produced to assess compliance with current Good Manufacturing Practice ("cGMP") regulations to assure that the facilities, methods and controls are adequate to preserve the drug's identity, strength, quality and purity; and
- FDA review and approval of the NDA.

#### *Pre-Approval Studies*

Clinical trials involve the administration of the IND to volunteers or patients under the supervision of one or more qualified investigators in accordance with FDA's GCP regulations. Clinical trials must be conducted under institutional review board approved protocols detailing the objectives of the trial and the safety and effectiveness criteria to be evaluated. Progress reports detailing the results of the clinical trials must be submitted at least annually to the FDA and more frequently if adverse events or other certain types of other changes occur.

Human clinical trials are typically conducted in three sequential phases that may overlap or be combined:

- *Phase 1:* The drug candidate is initially introduced into human subjects or patients with the disease and tested for safety, dosage tolerance, absorption, metabolism, distribution and excretion. In the case of some drug candidates for severe or life-threatening diseases, the initial human testing is often conducted in patients.
- *Phase 2:* Involves studies in a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the drug candidate for specific targeted diseases and to determine dosage tolerance and optimal dosage.
- *Phase 3:* Clinical trials are undertaken to further evaluate dosage, clinical efficacy and safety in an expanded patient population, typically at geographically dispersed clinical study sites. These studies are intended to establish the overall risk-benefit ratio of the drug candidate and provide, if appropriate, an adequate basis for product labeling.

Phase 1, Phase 2 and Phase 3 testing may not be completed successfully within any specified period, if at all. The FDA or an institutional review board or the sponsor may suspend a clinical trial at any time on various grounds, including a finding that the research subjects or patients are being exposed to an unacceptable health risk.

Concurrent with clinical trials, companies usually complete additional animal studies and must also develop additional information about the chemistry and physical characteristics of the drug candidate and finalize a process for manufacturing the product in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the drug candidate and, among other requirements, the manufacturer must develop methods for testing the identity, strength, quality and purity of the final drug. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the drug candidate does not undergo unacceptable deterioration over its shelf life.

Our business model is primarily focused on the preclinical to Phase 2a interval. This greatly reduces the time frame for us from in-license of a new, preclinical stage drug candidate to be developed to out-licensing to a pharmaceutical partner.

### *Approval Process*

After successful completion of the required clinical trials, an NDA is generally submitted, which is required before marketing of the product may begin in the U.S. The NDA must include the results of drug development, preclinical studies and clinical studies, together with other detailed information, including information on the chemistry, manufacture and composition of the drug. Once the submission is accepted for filing, the FDA begins an in-depth substantive review.

The FDA reviews an NDA that has been accepted for filing to determine, among other things, whether a product is safe and effective for its intended use. The approval process for an NDA is lengthy and the FDA may refuse to approve an NDA if the applicable regulatory criteria are not satisfied or may require additional clinical or other data and information. Even if such data and information is submitted, the FDA may ultimately decide that the NDA does not satisfy the criteria for approval. The FDA may also refer applications for drug candidates which present difficult questions of safety or efficacy to an advisory committee, typically a panel that includes clinicians and other experts, for review, evaluation and a recommendation as to whether the application should be approved. The FDA is not bound by the recommendation of an advisory committee. Before approving an NDA, the FDA will also inspect the facility or facilities where the product is manufactured to determine whether its manufacturing is cGMP-compliant to assure and preserve the product's identity, strength, quality, purity and stability.

There are various programs that are intended to expedite the development and review of drug candidates, and/or provide for approval on the basis of surrogate endpoints, including Fast Track, breakthrough therapy, priority review and accelerated approval. Even if a drug candidate qualifies for one or more of these programs, the FDA may later decide that the drug candidate no longer meets the conditions for qualification or that the time period for FDA review or approval will not be shortened. Generally, drug candidates that may be eligible for these programs are those for serious or life-threatening conditions, those with the potential to address unmet medical needs or those that offer meaningful benefits over existing treatments.

Fast Track is a process designed to facilitate the development and expedite the review of drug candidates to treat serious diseases and fill an unmet medical need. Breakthrough therapy requires preliminary clinical evidence that demonstrates the drug candidate may have substantial improvement on at least one clinically significant endpoint over available therapy. A breakthrough therapy designation conveys all of the Fast Track program features, as well as more intensive FDA guidance on an efficient drug development program. Priority review is designed to give drug candidates that offer major advances in treatment or provide a treatment where no adequate therapy exists an initial review within six months as compared to a standard review time of 10 months. Although Fast Track, breakthrough therapy and priority review do not affect the standards for approval, the FDA will attempt to facilitate early and frequent meetings with a sponsor of a Fast Track designated drug candidate and expedite review of the application for a drug candidate designated for priority review. Accelerated approval provides an earlier approval of drugs to treat serious diseases and that fill an unmet medical need based on a surrogate endpoint, which is a laboratory measurement or physical sign used as an indirect or substitute measurement representing a clinically meaningful outcome. As a condition of approval, the FDA may require that a sponsor of a product receiving accelerated approval perform post-marketing clinical trials.

If the FDA evaluations of the application and the manufacturing facilities are favorable, the FDA may issue an approval letter or an "approvable" letter. An approvable letter will usually contain a number of conditions that must be met in order to secure final approval of the NDA and authorization of commercial marketing of the drug for certain indications. An approval letter authorizes commercial marketing of the drug with specific prescribing information for a specific indication. As a condition of NDA approval, the FDA may require post-approval testing, including Phase 4 trials, and surveillance to monitor the drug's safety or efficacy and may impose other conditions, including labeling or distribution restrictions which can materially impact the potential market and profitability of the drug. Once granted, product approvals may be withdrawn if compliance with regulatory standards is not maintained or problems occur after the product reaches the market. The FDA may also refuse to approve the NDA or issue a "not approvable" letter outlining the deficiencies in the submission and often requiring additional testing or information.

To date, we have not submitted a marketing application for any drug candidate to the FDA or any foreign regulatory agency, and none of our drug candidates have been approved for commercialization in any country. We have limited experience in conducting and managing the clinical trials necessary to obtain regulatory approvals, including approval by the FDA. The time required to complete clinical trials and for the FDA's review processes is uncertain and typically takes many years. Our analysis of data obtained from preclinical and clinical activities is subject to confirmation and interpretation by regulatory authorities, which could delay, limit or prevent regulatory approval. We may also encounter unanticipated delays or increased costs due to government regulation from future legislation or administrative action or changes in FDA policy during the period of product development, clinical trials, and FDA

regulatory review. We estimate that it generally takes 10 to 15 years or possibly longer to discover, develop and bring to market a new pharmaceutical product in the U.S. as outlined below:

#### *Post-Approval Studies*

Once an approval is granted, the FDA may withdraw the approval if compliance with regulatory standards is not maintained or if problems occur after the product reaches the market. After approval, some types of changes to the approved product, such as adding new indications, manufacturing changes and additional labeling claims, are subject to further FDA review and approval. In addition, the FDA may require testing and surveillance programs to monitor the effect of approved products that have been commercialized, and the FDA has the power to prevent or limit further marketing of a product based on the results of these post-marketing programs.

Any drug products manufactured or distributed by us pursuant to FDA approvals are subject to continuing regulation by the FDA, including, among other things:

- record-keeping requirements;
- reporting of adverse experiences with the drug;
- providing the FDA with updated safety and efficacy information;
- drug sampling and distribution requirements;
- notifying the FDA and gaining its approval of specified manufacturing or labeling changes;
- complying with certain electronic records and signature requirements; and
- complying with FDA promotion and advertising requirements.

We rely, and expect to continue to rely, on third parties for the production of clinical quantities of our drug candidates. Future FDA and state inspections may identify compliance issues at the facilities of our contract manufacturers that may disrupt production or distribution, or require substantial resources to correct.

From time to time, legislation is drafted, introduced and passed in Congress that could significantly change the statutory provisions governing the approval, manufacturing and marketing of products regulated by the FDA. In addition, FDA regulations and guidance are often revised or reinterpreted by the agency in ways that may significantly affect our business and our drug candidates. It is impossible to predict whether legislative changes will be enacted, or FDA regulations, guidance or interpretations changed or what the impact of such changes, if any, may be.

#### *Foreign Regulations*

Whether or not we obtain FDA approval for a drug candidate, we must obtain the requisite approvals from regulatory authorities in non-U.S. countries prior to the commencement of clinical trials or marketing of our products in those countries. Certain countries outside of the U.S. have a process that requires the submission of a clinical trial application (“CTA”), much like an IND, prior to the commencement of human clinical trials. In the E.U., for example, a CTA must be submitted to the competent national health authority and to independent ethics committees in each country in which a company intends to conduct clinical trials. Once the CTA is approved in accordance with a country’s requirements, clinical trial development may proceed in that country.

The requirements and process governing the conduct of clinical trials, product licensing, pricing and reimbursement vary from country to country, but typically takes several years and requires significant resources. In all cases, the clinical trials must be conducted in accordance with GCP and other applicable regulatory requirements.

To obtain regulatory approval of an investigational drug under E.U. regulatory systems, we must submit a marketing authorization application. This application is similar to the NDA in the U.S., with the exception of, among other things, country-

specific document requirements. Drugs can be authorized in the E.U. by using (i) the centralized authorization procedure, (ii) the mutual recognition procedure, (iii) the decentralized procedure or (iv) national authorization procedures.

The EMA implemented the centralized procedure for the approval of human drugs to facilitate marketing authorizations that are valid throughout the E.U. This procedure results in a single marketing authorization granted by the European Commission that is valid across the E.U., as well as in Iceland, Liechtenstein and Norway. The centralized procedure is compulsory for certain human drugs including those that are: (i) derived from biotechnology processes, such as genetic engineering, or (ii) contain a new active substance indicated for the treatment of certain diseases.

### ***Reimbursement***

Sales of pharmaceutical products depend in significant part on the availability of third-party reimbursement, which is time consuming and expensive. Reimbursement may not be available or sufficient to allow us to sell our future products, if any, on a competitive and profitable basis.

The passage of the Medicare Prescription Drug and Modernization Act of 2003 (the “MMA”) imposed requirements for the distribution and pricing of prescription drugs for Medicare beneficiaries, which may affect the marketing of our future products, if any. The MMA also introduced a reimbursement methodology, part of which went into effect in 2004, and a prescription drug plan, which went into effect on January 1, 2006. While the MMA applies only to drug benefits for Medicare beneficiaries, private payors often follow Medicare coverage policy and payment limitations in setting their own payment rates. Any reduction in payment that results from the MMA may result in a similar reduction in payments from non-governmental payors.

In addition, in some foreign countries, the proposed pricing for a drug must be approved before it may be lawfully marketed. The requirements governing drug pricing vary widely from country to country. For example, the E.U. provides options for its member states to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. A member state may approve a specific price for the medicinal product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market.

There have been and we expect that there will continue to be frequent federal and state proposals to impose governmental pricing controls or cost containment measures for prescription drugs. While we cannot predict whether such legislative or regulatory proposals will be adopted, the adoption of such proposals could have a material adverse effect on our business, financial condition and profitability. For example, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Affordability Reconciliation Act of 2010, contains provisions that may reduce the profitability of drugs, including, for example, increased rebates for drugs sold to Medicaid programs, extension of Medicaid rebates to Medicaid managed care plans, mandatory discounts for certain Medicare Part D beneficiaries and annual fees based on pharmaceutical companies’ share of sales to federal health care programs. Even if favorable coverage and reimbursement status is attained for one or more of our drug candidates for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

### ***Other Regulations***

Pursuant to the Drug Price Competition and Patent Term Restoration Act of 1984, known as the Hatch-Waxman Act, under certain conditions a sponsor may be granted marketing exclusivity for a period of five years following FDA approval. During this period, third parties would not be permitted to obtain FDA approval for a similar or identical drug through an Abbreviated NDA, which is the application form typically used by manufacturers seeking approval of a generic drug. The Hatch-Waxman Act also permits a patent extension term of up to five years as compensation for patent term lost during product development and the FDA regulatory review process. However, patent extension cannot extend the remaining term of a patent beyond a total of 14 years. The patent term restoration period is generally one-half the time between the effective date of an IND and the submission date of an NDA, plus time of active FDA review between the submission date of an NDA and the approval of that application. Only one patent applicable to an approved drug is eligible for the extension and it must be applied for prior to expiration of the patent and within 60 days of the approval of the NDA.

In April 2015 and October 2016, prexigebersen received orphan drug designations for AML in the U.S. from the FDA and in the E.U. from the EMA, respectively. Orphan designation is available in the U.S. to drugs intended to treat, diagnose or prevent a rare

disease or condition that affects fewer than 200,000 people in the U.S. at the time of application for orphan designation. Orphan drug designation must be requested before submitting an application for marketing authorization. Orphan designation qualifies the sponsor of the product for a tax credit and marketing incentives. The first sponsor to receive FDA marketing approval for a drug with an orphan designation is entitled to a seven-year exclusive marketing period in the U.S. for that product for that indication and, typically, a waiver of the prescription drug user fee for its marketing application. However, a drug that the FDA considers to be clinically superior to, or different from, the approved orphan drug, even though for the same indication, may also obtain approval in the U.S. during the seven-year exclusive marketing period. Orphan drug exclusive marketing rights may also be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug. To receive orphan drug designation from the EMA, a therapy must be intended for the treatment of a life-threatening or chronically debilitating rare condition with a prevalence of less than five in 10,000 in the E.U. Orphan drug designation provides incentives designed to facilitate development, including fee reductions for protocol assistance, scientific advice and importantly, may provide up to ten years of market exclusivity in the E.U. following product approval.

There is no guarantee that any of our other drug candidates will receive orphan drug designation or that, even if such drug candidate is granted such status, the drug candidate's clinical development and regulatory approval process will not be delayed or will be successful.

Pharmaceutical companies are also subject to various federal and state laws pertaining to health care "fraud and abuse," including anti-kickback laws and false claims laws. Anti-kickback laws make it illegal for any entity or person to solicit, offer, receive, or pay any remuneration in exchange for, or to induce, the referral of business, including the purchase or prescription of a particular drug. False claims laws prohibit anyone from knowingly and willingly presenting, or causing to be presented, for payment to third party payors, including Medicare and Medicaid, claims for reimbursed drugs or services that are false or fraudulent, claims for items or services not provided as claimed, or claims for medically unnecessary items or services.

### **Company History and Available Information**

The Company was incorporated in May 2000 as a Utah corporation. In February 2008, Bio-Path Subsidiary completed a reverse merger with the Company, which at the time was traded over the counter and had no current operations. The prior name of the Company was changed to Bio-Path Holdings, Inc. and the directors and officers of Bio-Path Subsidiary became the directors and officers of Bio-Path Holdings, Inc. On March 10, 2014, our common stock ceased trading on the OTCQX and commenced trading on the Nasdaq Capital Market under the ticker symbol "BPTH." Effective December 31, 2014, we changed our state of incorporation from Utah to Delaware through a statutory conversion pursuant to the Utah Revised Business Corporation Act and the Delaware General Corporation Law.

On February 22, 2024, we effected a reverse stock split of our outstanding shares of common stock at a ratio of 1-for-20, and our common stock began trading on the split-adjusted basis on the Nasdaq Capital Market at the commencement of trading on February 23, 2024. All common stock share and per share amounts in this prospectus have been adjusted to give effect to the 1-for-20 reverse stock split.

Our principal executive offices are located at 4710 Bellaire Boulevard, Suite 210, Bellaire, Texas 77401, and our telephone number is (832) 742-1357. Our Internet address is [www.biopathholdings.com](http://www.biopathholdings.com). We are not including the information contained in our website as part of, or incorporating it by reference into, this prospectus. We make available free of charge through our website our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to these reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after we electronically file such materials with, or furnish it to, the SEC. We also make available on our website our Corporate Governance Guidelines; the charters for our Audit Committee, Nominating/Corporate Governance Committee and Compensation Committee; our Employee Code of Business Conduct and Ethics, which applies to all of our employees, including our executive officers; and our Code of Business Conduct and Ethics for Members of the Board of Directors. All such information is also available in print and free of charge to any of our stockholders who request it. In addition, we intend to disclose on our website any amendments to, or waivers from, our codes of business conduct and ethics that are required to be publicly disclosed pursuant to rules of the SEC.



## **PROPERTIES**

In April 2014, we entered into a lease agreement for approximately 3,000 square feet of office space for general and administrative purposes in Bellaire, Texas, which is part of the Houston metropolitan area. The term of the lease began on August 1, 2014 and was scheduled to terminate on July 31, 2019. In May 2019, we entered into an amendment to the lease agreement to extend the term of the lease to October 31, 2024. In October 2024, we entered into an amendment to the lease agreement to extend the term of the lease to October 31, 2025.

In April 2016, we entered into a lease agreement for approximately 2,100 square feet of lab space located in Bellaire, Texas for research and development purposes. The term of the lease began on May 1, 2016 and was scheduled to terminate on April 30, 2019. In December 2018, we entered into an amendment to the lease agreement to extend the term of the lease to April 30, 2022. In January 2022, we exercised an option in the lease agreement amendment to extend the term of the lease to April 30, 2025. In October 2024, we entered into an amendment to the lease agreement to extend the term of the lease to October 31, 2025.

We do not own or lease any other real property that is materially important to our business. We believe that our current facilities are adequate for our current needs and that additional space will be available when and as needed.

## **LEGAL PROCEEDINGS**

None.

## **MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES**

Our common stock is listed on The Nasdaq Capital Market under the symbol "BPTH."

### **Holders**

As of January 15, 2025, there were 5,767,892 shares of our common stock outstanding and approximately 197 stockholders of record.

### **Dividends**

We have not paid any cash dividends since our inception and do not anticipate or contemplate paying dividends in the foreseeable future.

### **Unregistered Sales of Equity Securities and Use of Proceeds**

None.

### **Purchases of Equity Securities by the Issuer and Affiliated Purchasers**

None.

## DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

### Identification of Directors and Executive Officers

Our current directors and officers are set forth below:

Name	Age	Position - Committee
Peter H. Nielsen	75	Chief Executive Officer; President; Chief Financial Officer; Treasurer; Chairman of the Board; Director – Business Development Committee
Heath W. Cleaver, CPA	51	Director – Audit Committee (Chair); Compensation Committee; Nominating/Corporate Governance Committee (Chair)
Paul D. Aubert	55	Director – Audit Committee; Compensation Committee (Chair); Nominating/Corporate Governance Committee
Aline B. Sherwood	54	Director – Audit Committee; Compensation Committee; Nominating/Corporate Governance Committee; Business Development Committee (Chair)
Douglas P. Morris	69	Director – Business Development Committee; Director of Investor Relations; Secretary

Our current directors will serve until the next annual meeting of stockholders or until their successors are elected or appointed and qualified.

### Background Information

**Peter H. Nielsen.** Mr. Nielsen co-founded Bio-Path and has served as Bio-Path’s President, Chief Executive Officer, Chief Financial Officer/Treasurer and Chairman of the Board since 2008. At the time of Bio-Path’s establishment in 2007, Mr. Nielsen licensed technology and targets from The University of Texas, MD Anderson Cancer Center and coordinated preclinical development, optimization and manufacturing of Bio-Path’s lead drug candidate, prexigebersen. Since that time, Mr. Nielsen has led the clinical advancement of prexigebersen into Phase 2 studies, the introduction of additional pipeline candidates and the Company’s public market debut. Prior to co-founding Bio-Path, Mr. Nielsen worked with several other companies, leading turnarounds and developing and executing on strategies for growth. Mr. Nielsen previously served as a director of Synthecon, Inc., a company developing 3D cell culture technology. Before entering the biotechnology sector, Mr. Nielsen was a lieutenant in the U.S. Naval Nuclear Power program where he was director of the physics department and was employed at Ford Motor Company in product development. Mr. Nielsen has a broad background in senior management and has significant negotiating experience. He holds engineering, mathematics and M.B.A. finance degrees from the University of California at Berkeley.

**Heath W. Cleaver, CPA.** Mr. Cleaver has served as a director of Bio-Path since 2014. Since February 2020, Mr. Cleaver has served as the President and Chief Financial Officer of Compressor Engineering Corporation (“CECO”), a privately-held independent manufacturer of engine and compressor replacement parts. Prior to his current roles, Mr. Cleaver served as Chief Financial Officer of CECO from July 2017 to February 2020. Mr. Cleaver was previously a consultant providing turn-around management and capital raising services to companies in the oil and gas service sector from 2016 to 2017. From 2015 to 2016, Mr. Cleaver served as the Chief Financial Officer of Global Fabrication Services, Inc. In 2014, Mr. Cleaver served as Chief Financial Officer at Tarka Resources, Inc. From 2011 until 2014, Mr. Cleaver served as Chief Financial Officer of Porto Energy Corp. From 2010 until 2011, Mr. Cleaver served as Chief Accounting Officer of Porto Energy Corp. Mr. Cleaver served as Corporate Controller and then as Vice President and Chief Accounting Officer for BPZ Energy from 2006 to 2010. Beginning in 1997 through 2004, Mr. Cleaver served in various accounting roles, including Financial Controller, at Horizon Offshore Contractors, Inc. Mr. Cleaver is a Certified Public Accountant in the state of Texas and holds a Bachelor’s Degree in Business Administration - Accounting from Texas A&M University.

**Paul D. Aubert.** Mr. Aubert was appointed to the Board on February 1, 2018. Mr. Aubert is currently Senior Vice President & General Counsel of Anthem Holdings Company and its subsidiaries, positions he has held since March 2018. From June 2014 to March 2018, he practiced law in a solo law practice and also served as part-time General Counsel to his current employers. From February 2012 through May 2014, Mr. Aubert served as General Counsel of Pernix Therapeutics Holdings, Inc., a Nasdaq-listed specialty pharmaceutical company. Before that, he was a Shareholder in the Corporate and Securities practice group at Winstead PC, a national law firm headquartered in Dallas, Texas, from 2007 to 2012. Mr. Aubert also served as an attorney in the Corporate and Securities practice groups of several national and international law firms prior to joining Winstead in 2004, including at Andrews Kurth LLP from 1999 to 2004, Weil, Gotshal & Manges LLP from 1998 to 1999 and Jones Walker LLP from 1996 to 1998. Mr. Aubert holds a Juris Doctor and an M.B.A. from Tulane University in New Orleans, Louisiana and a B.A. in History from Louisiana State University - Baton Rouge.

**Aline B. Sherwood.** Ms. Sherwood was appointed to the Board on March 31, 2022. Ms. Sherwood is currently the senior director of strategic communications at Cognition Therapeutics, Inc. Prior to joining Cognition in October 2023, she provided tactical support and strategic counsel to pre-commercial, public and private life sciences companies through Scientia Communications, LLC, an independent communications consultancy established in 2010. Previously, Ms. Sherwood worked at a series of global and boutique public and investor relations agencies where she provided support for companies developing therapeutics in a variety of indications. Earlier in her career, she managed corporate communications for The Liposome Company, which had developed and commercialized a liposomal formulation of amphotericin B. Before transitioning to industry, Ms. Sherwood worked in research laboratories at Princeton University and Thomas Jefferson University. She earned a Bachelor of Science in biochemistry and classical civilizations from Beloit College.

**Douglas P. Morris.** Mr. Morris is a co-founder of Bio-Path and has served as a director of Bio-Path since 2007 and served as an officer from 2007 to June 2014. Mr. Morris also currently serves as the Director of Investor Relations and the Secretary of Bio-Path. Mr. Morris previously served as a co-founder, Managing Member, and Secretary of nCAP Holdings, LLC (nCAP), a privately held technology based company from September 2013 to January 2016. Between 1993 and 2010, Mr. Morris was an officer and director of Celtic Investment, Inc., a financial services company. Mr. Morris owned and operated Hyacinth Resources, LLC (“Hyacinth”), a business-consulting firm, from 1990 until September 2018, and is also a Managing Member of Sycamore Ventures, LLC, a privately held consulting firm. Mr. Morris has a B.A. from Brigham Young University, and attended the University of Southern California Master’s program in public administration.

#### **Board of Directors**

Our operations are managed under the broad supervision of the Board, which has ultimate responsibility for the establishment and implementation of our general operating philosophy, objectives, goals and policies. Our Board is currently comprised of three independent directors and two non-independent directors. The Board has determined that current directors Heath W. Cleaver, Paul D. Aubert and Aline B. Sherwood are “independent” as independence is defined under the listing standards for The Nasdaq Stock Market. The Board based these determinations primarily on a review of the responses our directors provided to questions regarding employment and compensation history, affiliations and family and other relationships.

#### **Codes of Ethics**

We have adopted the Employee Code of Business Conduct and Ethics, which applies to all of our employees, including our executive officers, and the Code of Business Conduct and Ethics for Members of the Board, which applies to members of the Board.

#### **Board Committees**

The Board has a standing audit committee (the “Audit Committee”), compensation committee (the “Compensation Committee”) and nominating/corporate governance committee (the “Nominating/Corporate Governance Committee”), each of which is governed by a charter. The Board may also establish other committees from time to time as necessary to facilitate the management of the business and affairs of the Company. In 2020, the Board formed a business development committee (the “Business Development Committee”) that assists the Board by advising management on its plans for business development, licensing opportunities and business partnership opportunities. In addition to these committees, we also have a Scientific Advisory Board that serves an advisory role to management and the Board. The information below summarizes the functions of each of the committees and the Scientific Advisory Board.

### ***Audit Committee***

The Audit Committee has been structured to comply with the requirements of Section 3(a)(58)(A) of the Exchange Act. The Board has determined that the Audit Committee members have the appropriate level of financial understanding and industry specific knowledge to be able to perform the duties of the position and are financially literate and have the requisite financial sophistication as required by the applicable listing standards of The Nasdaq Stock Market.

The Audit Committee, as permitted by, and in accordance with, its charter, is responsible to periodically assess the adequacy of procedures for the public disclosure of financial information and review on behalf of the Board, and report to the Board, the results of its review and its recommendation regarding all material matters of a financial reporting and audit nature, including, but not limited to, the following main subject areas:

- financial statements, including management’s discussion and analysis thereof;
- financial information in any annual information form, proxy statement, prospectus or other offering document, material change report, or business acquisition report;
- press releases regarding annual and interim financial results or containing earnings guidance;
- internal controls;
- audits and reviews our financial statements; and
- filings with securities regulators containing financial information, including our Annual Reports on Form 10-K and Quarterly Reports on Form 10-Q.

The Audit Committee appoints and sets the compensation for the independent registered public accounting firm annually and reviews and evaluates such external auditor. This external auditor reports directly to the Audit Committee. The Audit Committee establishes our hiring policies regarding current and former partners and employees of the external auditor. In addition, the Audit Committee pre-approves all audit and non-audit services undertaken by the external auditor.

The Audit Committee has direct responsibility for overseeing the work of the external auditor engaged for the purpose of preparing or issuing an auditor’s report or performing other audit, review or attest services, including the resolution of disagreements between the external auditor and management.

The Audit Committee is currently comprised of Messrs. Cleaver and Aubert and Ms. Sherwood. Mr. Cleaver currently serves as the chair of the Audit Committee. The Board has determined that Mr. Cleaver qualifies as an “audit committee financial expert” under the Exchange Act and that each member of the Audit Committee is an independent director. The Audit Committee meets at least once per fiscal quarter to fulfill its responsibilities under its charter and in connection with the review of the Company’s quarterly and annual financial statements.

### ***Compensation Committee***

The Compensation Committee’s role is to assist the Board in fulfilling its responsibilities relating to all forms of compensation of the Company’s executive officers, administering the Company’s incentive compensation plan and other benefits plans, including a deferred compensation plan, if applicable, and producing any required report on executive compensation for use in the Company’s proxy statement or other public disclosure. The Compensation Committee operates under a written charter adopted by the Board. The Compensation Committee periodically assesses compensation of our executive officers in relation to companies of comparable size, industry and complexity, taking the performance of the Company and such other companies into consideration. All decisions with respect to the compensation of our Chief Executive Officer are determined and approved either solely by the Compensation Committee or together with other independent directors, as directed by the Board. All decisions with respect to non-CEO executive compensation, and incentive-compensation and equity-based plans are first approved by the Compensation Committee and then submitted, together with the Compensation Committee’s recommendation, to the members of the Board for final approval. In addition,

the Compensation Committee will, as appropriate, review and approve public or regulatory disclosure respecting compensation, including required disclosures regarding executive compensation under Item 402 of Regulation S-K, and the basis on which performance is measured. The Compensation Committee has the authority to retain and compensate any outside adviser as it determines necessary to permit it to carry out its duties. The Compensation Committee has not to date engaged the services of any executive compensation consultant. The Compensation Committee may not form or delegate authority to subcommittees without the prior approval of the Board.

The Compensation Committee is currently comprised of Messrs. Aubert and Cleaver and Ms. Sherwood, each of whom are independent under the rules of The Nasdaq Stock Market. The Compensation Committee meets as necessary. Mr. Aubert currently serves as the chair of the Compensation Committee.

#### ***Nominating/Corporate Governance Committee***

The Nominating/Corporate Governance Committee's charter provides that the responsibilities of such committee include:

- evaluating, identifying and recommending nominees to the Board;
- considering written recommendations from our stockholders for nominees to the Board;
- recommending directors to serve as committee members and chairs;
- reviewing and developing corporate governance guidelines, policies and procedures for the Board;
- reviewing disclosure by the Company of matters within the Nominating/Corporate Governance Committee's mandate; and
- reviewing and evaluating the Nominating/Corporate Governance Committee's charter and efficacy.

The Nominating/Corporate Governance Committee is responsible for, among other things, identifying and recommending potential candidates for nomination to the Board. The Nominating/Corporate Governance Committee receives advice from the Board and will consider written recommendations from the stockholders of the Company respecting individuals best suited to serve as directors, and, when necessary, develops its own list of appropriate candidates for directorships. For a description of the procedures to be followed by stockholders of the Company in submitting recommendations to be considered by the Nominating/Corporate Governance Committee, see the discussion set forth below under the heading titled, "Stockholder Nominations for Directors."

The Nominating/Corporate Governance Committee is currently comprised of Messrs. Cleaver and Aubert and Ms. Sherwood, each of whom are independent under the rules of The Nasdaq Stock Market. Mr. Cleaver currently serves as the chair of the Nominating/Corporate Governance Committee. The Nominating/Corporate Governance Committee meets at least annually, and otherwise as necessary.

#### ***Business Development Committee***

The Business Development Committee assists the Board by advising management on its plans for business development, licensing opportunities and business partnership opportunities. The Business Development Committee also performs other duties as directed by the Board from time to time and operates under a written charter adopted by the Board. The Business Development Committee is currently comprised of Ms. Sherwood and Messrs. Nielsen and Morris. Ms. Sherwood currently serves as the chair of the Business Development Committee.

#### ***Scientific Advisory Board***

The Scientific Advisory Board assists management and the Board on an advisory basis with respect to the research, development, clinical, regulatory and commercial plans and activities relating to research, manufacture, use and/or sale of our drug candidates and products. The Scientific Advisory Board meets on an *ad hoc* basis and may attend meetings of the Board at the Board's request. The

current members of the Scientific Advisory Board are Jorge Cortes, M.D, who serves as chairman, D. Craig Hooper, Ph.D., and Jason Fleming, M.D.

#### **Availability of Committee Charters and Other Information**

The charters for our Audit Committee, Compensation Committee, and Nominating/Corporate Governance Committee, as well as our Corporate Governance Guidelines, Employee Code of Business Conduct and Ethics and Code of Business Conduct and Ethics for Members of the Board, are available under the section titled “Corporate Governance” on the Investors page of the Company’s website, [www.biopathholdings.com](http://www.biopathholdings.com). We intend to disclose any changes to or waivers from the Employee Code of Business Conduct and Ethics that would otherwise be required to be disclosed under Item 5.05 of Form 8-K on our website. The information on our website is not, and shall not be deemed to be, a part of this prospectus or incorporated into any other filings we make with the SEC.

We also make available on our website, free of charge, access to our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and any amendments to those reports, as well as other documents that we file with or furnish to the SEC pursuant to Sections 13(a) or 15(d) of the Exchange Act, as soon as reasonably practicable after such documents are filed with, or furnished to, the SEC.

#### **Nomination Process**

It is our Board’s responsibility to nominate members for election to the Board and to fill vacancies on the Board that may occur between annual meetings of stockholders. The Nominating/Corporate Governance Committee assists the Board by identifying and reviewing potential candidates for Board membership consistent with criteria approved by the Board. The Nominating/Corporate Governance Committee also annually recommends qualified candidates (which may include existing directors) for approval by the Board of a slate of nominees to be proposed for election to the Board at the annual meeting of stockholders.

In the event of a vacancy on the Board between annual meetings of our stockholders, the Board may request that the Nominating/Corporate Governance Committee identify, review and recommend qualified candidates for Board membership for Board consideration to fill such vacancies, if the Board determines that such vacancies will be filled. Our First Amended and Restated Bylaws (as amended, the “Bylaws”) allow for up to fifteen directors. The Board is permitted by the Bylaws to change the number of directors by a resolution adopted by the Board.

When formulating its recommendations for potential Board nominees, the Nominating/Corporate Governance Committee seeks and considers advice and recommendations from management, other members of the Board and may seek or consider advice and recommendations from consultants, outside counsel, accountants or other advisors as the Nominating/Corporate Governance committee or the Board may deem appropriate.

Board membership criteria are determined by the Board, with input from the Nominating/Corporate Governance Committee. The Board is responsible for periodically determining the appropriate skills, perspectives, experiences and characteristics required of Board candidates, taking into account our needs and current make-up of the Board. This assessment should include appropriate knowledge, experience, and skills in areas deemed critical to understanding the Company and our business; personal characteristics, such as integrity and judgment; and the candidate’s commitments to the boards of other companies. Each Board member is expected to ensure that other existing and planned future commitments do not materially interfere with the member’s service as a director and that he or she devotes the time necessary to discharge his or her duties as a director.

#### **Stockholder Nominations for Directors**

The Nominating/Corporate Governance Committee will consider candidates for director nominees that are recommended by our stockholders in the same manner as Board recommended nominees, in accordance with the procedures set forth in our Bylaws. Any such nominations should be submitted to the Nominating/Corporate Governance Committee c/o Secretary, Bio-Path Holdings, Inc.,

4710 Bellaire Boulevard, Suite 210, Bellaire, Texas 77401 before the deadline set forth in the Bylaws and should be accompanied by the following information:

- appropriate biographical information, a statement as to the qualifications of the nominee and any other information relating to such nominee that is required to be disclosed pursuant to Regulation 14A under the Exchange Act (including such person's written consent to being named in the proxy statement as a nominee and to serving as a director if elected); and
- the Proposing Stockholder Information (as defined in the Bylaws).

#### **Involvement in Certain Legal Proceedings**

There have been no events under any bankruptcy act, no criminal proceedings and any judgments or injunctions material to the evaluation of the ability and integrity of any director or executive officer during the last ten years.

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

Section 16(a) of the Exchange Act requires our directors and officers, and persons who own more than 10% of our common stock, to file initial reports of ownership and reports of changes in ownership (Forms 3, 4, and 5) of common stock with the SEC. Officers, directors and greater than 10% stockholders are required by SEC regulation to furnish us with copies of all such forms that they file.

To our knowledge, based solely on our review of the copies of such reports received by us and on written representations by certain reporting persons that no reports on Form 5 were required, we believe that during the fiscal year ended December 31, 2023, all Section 16(a) filing requirements applicable to our officers, directors and 10% stockholders were complied with in a timely manner.

## EXECUTIVE COMPENSATION

The compensation committee of our board of directors (the “Compensation Committee”) oversees our compensation programs for executives and all employees. The Compensation Committee understands that for the Company and its stockholders to achieve long-term success, the compensation programs need to attract, retain, develop and motivate a strong leadership team. As a result, our executive compensation programs are designed to pay for performance, enable talent attraction, retain top talent and closely align the interests of our executives with those of our stockholders. All decisions with respect to the compensation of our Chief Executive Officer are determined and approved either solely by the Compensation Committee or together with other independent directors, as directed by our board of directors. All decisions with respect to non-CEO executive compensation, incentive-compensation and equity-based plans are first approved by the Compensation Committee and then submitted, together with the Compensation Committee’s recommendation, to the members of our board of directors for final approval.

This section provides important information on our executive compensation programs and explains the compensation decisions made during 2024 by the Compensation Committee for our named executive officers (“NEOs”). In the fiscal year ended December 31, 2024, our only NEO was Peter H. Nielsen, Chairman of the Board, Chief Executive Officer, Chief Financial Officer and President.

### *Compensation Philosophy*

Our primary objective with respect to executive compensation is to design a reward system that will align executive compensation with our overall business strategies and attract and retain highly qualified executives. We intend to stay competitive in the marketplace with companies of comparable size, industry and complexity. Our compensation philosophy for executives is guided by the following principles:

- *Pay for Performance.* In making compensation decisions, we consider annual and long-term Company performance and consider the compensation of our executive officers in relation to companies of comparable size, industry and complexity, taking the performance of the Company into consideration.
- *Reviewed Annually.* The Compensation Committee annually reviews compensation levels to ensure we remain competitive and continue to attract, retain and motivate top-tier talent.
- *Alignment with Stockholder Interests.* Our compensation is intended to closely align the interests of our NEOs with those of our stockholders in an effort to create long-term stockholder value. In developing our compensation philosophy, the Compensation Committee has considered the most recent stockholder advisory vote on executive compensation in which an overwhelmingly positive percentage of the votes cast were in favor of our executive compensation. The Compensation Committee is continuously mindful of stockholders’ views on executive compensation and remains focused on ensuring proper alignment with stockholder interests.

Our compensation philosophy rewards demonstrated performance and encourages behavior that is in the long-term best interests of the Company and its stockholders.



***Elements and Mix of our 2024 Compensation Program***

The following elements made up the fiscal year 2024 compensation program for our NEOs:

<b>Element</b>	<b>Form of Compensation</b>	<b>Purpose, Basis and Performance Criteria</b>
Base Salary	Cash	<ul style="list-style-type: none"> <li>• Base salary is intended to provide a market competitive level of fixed compensation in recognition of responsibilities, skills, capabilities, experience and leadership.</li> <li>• Base salary is not generally performance based, but reflective of competencies and experience.</li> </ul>
Annual Performance Incentive Awards (considered “at-risk” compensation)	Cash	<ul style="list-style-type: none"> <li>• Annual cash performance incentive awards are intended to motivate and reward performance achievement.</li> <li>• Payments are discretionary and approved annually by the Compensation Committee.</li> </ul>
Long-Term Incentive Awards (considered “at-risk” compensation)	Stock Options	<ul style="list-style-type: none"> <li>• Long-term incentive awards are intended to recognize and reward the achievement of long-term corporate goals and objectives, recognize promotions, motivate retention of our leadership talent and align executives’ interests with our stockholders.</li> <li>• The Compensation Committee determines the amount of long-term incentive awards to be granted to each NEO. The Compensation Committee also may make isolated awards to recognize promotions, new hires or individual performance achievements.</li> <li>• In 2024, the long-term incentive awards included time-vested equity awards that vest over a four-year period.</li> <li>• The Compensation Committee provides time-vested long-term incentives (i) to build a consistent ownership stake and retention incentive, (ii) to create a meaningful tie to the Company’s relative long-term stockholder returns and (iii) to motivate consistent improvement over a longer-term horizon.</li> </ul>
Change of Control Severance	Eligible to receive severance payments and post-termination health benefits in connection with involuntary termination within three months before or twelve months after a change of control	<ul style="list-style-type: none"> <li>• Employment agreements are intended to provide financial security and an industry-competitive compensation package for NEOs. This additional security helps ensure that NEOs remain focused on our performance and the continued creation of stockholder value throughout any change of control transaction rather than on the potential uncertainties associated with their own employment.</li> </ul>

***Evaluation Process, Compensation Consultant, Peer Comparisons and Officers***

*Evaluation Process.* The Compensation Committee oversees the administration of the compensation programs applicable to our employees, including our NEOs. The Compensation Committee generally makes its decisions regarding the annual compensation of our NEOs at its regularly-scheduled meeting in the first quarter of each year. These decisions include adjustments to base salary, grants of annual incentive awards and grants of long-term incentive awards. The Compensation Committee also makes compensation adjustments as necessary at other times during the year, such as in the case of promotions, changes in employment status and for competitive purposes.

Each year for the Compensation Committee meeting, our CEO prepares an evaluation of each of the other executive officers, if any, and makes compensation recommendations to the Compensation Committee based upon our performance against our corporate performance metrics and the individual’s performance. In addition to considering the CEO’s recommendations, the Compensation

Committee assesses the applicable executive officer’s impact during the year and his or her overall value to the Company, specifically by considering the individual leadership skills, impact on strategic initiatives, performance in his or her primary area of responsibility, his or her role in succession planning and development, and other intangible qualities that contribute to corporate and individual success. During 2024, our CEO was our only executive officer.

*Compensation Consultant and Peer Comparisons.* For the 2024 performance period, the Compensation Committee did not engage an external compensation consultant to review the compensation of our executive officers. For comparison purposes, the Compensation Committee relied upon peer executive compensation data from proxies and compensation surveys of the Industry Peer Group (as defined below) prepared by our executive compensation counsel based on parameters set by the Compensation Committee. The Compensation Committee reviewed executive compensation data from the Industry Peer Group to consider competitive pay levels and compensation practices. Such data included components such as total direct compensation, considered as the sum of base salary and annual cash performance incentive award, as well as total compensation, including long-term incentive awards.

While executive compensation data from the Industry Peer Group provides a point of reference for measurement, it is not the determinative factor for compensation decisions. The Compensation Committee does not target the compensation of our executive officers to a specific percentile of compensation provided to officers in comparable positions in our Industry Peer Group. The purpose of the comparison is not to supplant the analyses of our corporate performance and the individual performance of our executive officers that the Compensation Committee considers when making compensation decisions. Because the compensation data is just one of the several analytic tools that are used in setting executive compensation, the Compensation Committee has discretion in determining the nature and extent of its use.

The Compensation Committee established our current Industry Peer Group in 2024. With the assistance of our executive compensation counsel, the Compensation Committee reviews the composition of the peer group annually to ensure that companies are relevant for comparative purposes. In identifying companies to include in the Industry Peer Group, the Compensation Committee considered, among other things, the following:

- the industry of the companies;
- the annual revenue, market capitalization and total assets of the companies;
- the number of full-time employees of the companies;
- the market data sources that are available with respect to the companies; and
- the number of peers included in the Industry Peer Group.

For 2024, our Industry Peer Group consisted of the following companies (the “Industry Peer Group”):

- CNS Pharmaceuticals, Inc. (CNSP)
- Cyclacel Pharmaceuticals Inc. (CYCC)
- Kintara Therapeutics, Inc. (KTRA)
- Monopar Therapeutics, Inc. (MNPR)
- Neurobo Therapeutics Inc. (NRBO)
- Onconova Therapeutics, Inc. (ONTX)
- Panbela Therapeutics, Inc. (PBLA)
- Soligenix, Inc. (SNGX)

- Sonnet Biotherapeutics Holdings, Inc. (SONN)
- Xenetic Biosciences Inc. (XBIO)

*Role of the Chief Executive Officer.* Annually, our CEO provides the Compensation Committee with an evaluation of his performance that is based, in large part, upon performance of the Company and as our lead representative to the investment community. The Compensation Committee evaluates our CEO on these and other criteria. The total compensation package for our CEO is based on the Compensation Committee's evaluation, and reflects his performance, the performance of the Company and competitive industry practices.

*Role of Other Executive Officers.* Our CEO makes recommendations to the Compensation Committee on all compensation actions (other than his own compensation) affecting our other executive officers, if any. In developing his recommendation for an executive officer, our CEO considers the self-evaluation prepared by the executive officer, the recommendations of his executive team, as well as his own evaluation. Our CEO's evaluation includes an assessment of the impact that the executive officer has had on the Company during the award year and their overall value to the Company as a senior leader. The Compensation Committee is provided with our CEO's evaluation of each executive officer's performance and contributions to the Company. The Compensation Committee considers the information and recommendations provided by our CEO and provides a recommendation to our board of directors for non-CEO executive officer base salary, annual cash incentive awards and grants of long-term incentive awards, which are subject to approval by our board of directors. During 2024, our CEO was our only executive officer.

### **2024 Performance Analysis and Compensation Decisions**

In its meeting in the first quarter of each year, the Compensation Committee determines base salaries for the current year, the annual performance incentive awards for prior-year performance and the long-term incentive awards for the current year. Each element is reviewed annually, as well as at the time of a promotion, other change in responsibilities, other significant corporate events or a material change in market conditions. Variances in the amount of compensation awarded to each executive officer generally reflect differences in individual responsibility and experience.

*Base Salary.* During 2024, the Compensation Committee approved an annual base salary for Mr. Nielsen of \$440,000, compared to \$400,000 during 2023 (Mr. Nielsen voluntarily reduced his base salary for 2023 from \$575,000 to \$400,000).

*Annual Performance Incentive Awards.* During 2024, the Compensation Committee approved a discretionary annual cash performance incentive award for Mr. Nielsen in the amount of \$150,000.

*Long-term Incentive Awards.* The Compensation Committee believes that long-term incentive awards should provide for a retention incentive with a strong tie to relative long-term stockholder return. Accordingly, the Compensation Committee grants stock option awards that typically vest over a four-year period. During 2024, the Board approved a long-term incentive award in the form of stock options to Mr. Nielsen based on recommendations from the Compensation Committee. Specifically, in July 2024, Mr. Nielsen was awarded a time-vested stock option award to purchase 25,000 shares of our common stock. The terms of the stock option grant require, among other things, that Mr. Nielsen continue to provide services over the vesting period of the options. The stock options vest over a four-year period from the date of the grant, with one-fourth (1/4) of the stock options vesting on the first anniversary of such grant, and the remaining stock options vesting thereafter in equal monthly increments equal to one-forty-eighth (1/48) of the stock options over the next three years, based on continuing service to the Company.

### Summary Compensation Table

The following table sets forth information with respect to the compensation of our sole NEO for the fiscal years ended December 31, 2024 and 2023.

Name and Principal Position	Year	Salary (\$)	Bonus (\$)	Option Awards (\$) <sup>(1)</sup>	All Other Compensation (\$)	Total (\$)
Peter H. Nielsen, CEO,	2024	\$ 440,000	\$ 150,000	\$ 35,617	\$ 13,090 <sup>(2)</sup>	\$ 638,707
CFO, President, Chairman, Director	2023	\$ 575,000 <sup>(3)</sup>	\$ 110,000 <sup>(4)</sup>	\$ 130,880	\$ 11,237 <sup>(5)</sup>	\$ 827,117

- (1) The amounts reported in this column reflect the aggregate grant date fair value of equity awards granted during the year computed in accordance with FASB ASC Topic 718. See Note 10 to our condensed consolidated financial statements included in the Company's Quarterly Report on Form 10-Q for the nine months ended September 30, 2024 for assumptions made by us in such valuation with respect to the 2023 award. See Note 9 to our consolidated financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2023 for assumptions made by us in such valuation with respect to the 2023 award.
- (2) The amounts reported include Medicare premiums of \$5,347, insurance copayments of \$6,387 and certain other benefits including life insurance premiums paid by the Company for Mr. Nielsen.
- (3) Mr. Nielsen voluntarily reduced his base salary for 2023 to \$400,000.
- (4) Mr. Nielsen voluntarily elected to forego the entire \$110,000 bonus.
- (5) The amounts reported include Medicare premiums of \$7,855, insurance copayments of \$1,990 and certain other benefits including life insurance premiums paid by the Company for Mr. Nielsen.

### Grants of Plan-Based Awards Table

The following table contains information about grants of plan-based stock options to our sole NEO during fiscal year 2024:

Name	Grant Date	Estimated Future Payouts Under Non-Equity Incentive Plan Awards			All Other Stock Awards: Number of Shares of Stock or Units (#)	All Other Option Awards: Number of Securities Underlying Options (#)	Exercise or Base Price of Option Awards (\$/Sh)	Grant Date Fair Value of Stock Awards (\$) <sup>(2)</sup>
		Threshold (\$)	Target (\$)	Maximum (\$)				
Mr. Nielsen <sup>(1)</sup>	7/30/2024					25,000	\$ 1.55	\$ 1.42

- (1) Reflects time-vested stock options awarded under the 2022 Stock Incentive Plan. The options vest over a four-year period from the date of grant, with one-fourth (1/4) of the options vesting on the first anniversary of such grant, and the remaining options vesting thereafter in equal monthly increments equal to one-forty-eighth (1/48) of the options over the next three years.
- (2) The amounts in this column reflect the aggregate grant date fair value of equity awards granted during the year computed in accordance with FASB ASC Topic 718. See Note 10 to our condensed consolidated financial statements included in the Company's Quarterly Report on Form 10-Q for the nine months ended September 30, 2024 for assumptions made by us in such valuation with respect to the 2024 award.

### Narrative Disclosures to Summary Compensation Table and Grants of Plan-Based Awards Table

Please see the discussion under the heading "2024 Performance Analysis and Compensation Decisions" above.

### Outstanding Equity Awards at December 31, 2024

The following table sets forth certain information with respect to outstanding stock option awards of our sole NEO for the fiscal year ended December 31, 2024.

Name	Number of Securities Underlying Unexercised Options Exercisable (#)	Number of Securities Underlying Unexercised Options Unexercisable (#)	Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options (#)	Option Exercise Price (\$)	Option Expiration Date
Mr. Nielsen <sup>(1)</sup>	138	—	—	\$ 11,000.00	April 2026
Mr. Nielsen <sup>(1)</sup>	325	—	—	\$ 736.00	April 2028
Mr. Nielsen <sup>(1)</sup>	750	—	—	\$ 368.00	March 2029
Mr. Nielsen <sup>(1)</sup>	750	—	—	\$ 65.00	March 2030
Mr. Nielsen <sup>(1)</sup>	4,250	—	—	\$ 104.20	June 2030
Mr. Nielsen <sup>(2)</sup>	4,688	312	—	\$ 140.40	March 2031
Mr. Nielsen <sup>(3)</sup>	3,096	1,404	—	\$ 72.20	March 2032
Mr. Nielsen <sup>(4)</sup>	2,082	3,168	—	\$ 27.80	May 2033
Mr. Nielsen <sup>(5)</sup>	—	25,000	—	\$ 1.55	July 2034

- (1) All of these options granted are fully vested.
- (2) This option vests over a four-year period from the date of grant, March 31, 2021, with one-fourth (1/4) of the shares vesting on the first anniversary of such grant, and the remaining shares vesting thereafter in equal monthly increments equal to one-forty-eighth (1/48) of the shares over the next three years, based on continuing service to the Company.
- (3) This option vests over a four-year period from the date of grant, March 23, 2022, with one-fourth (1/4) of the shares vesting on the first anniversary of such grant, and the remaining shares vesting thereafter in equal monthly increments equal to one-forty-eighth (1/48) of the shares over the next three years, based on continuing service to the Company.
- (4) This option vests over a four-year period from the date of grant, May 2, 2023, with one-fourth (1/4) of the shares vesting on the first anniversary of such grant, and the remaining shares vesting thereafter in equal monthly increments equal to one-forty-eighth (1/48) of the shares over the next three years, based on continuing service to the Company.
- (5) This option vests over a four-year period from the date of grant, July 30, 2024, with one-fourth (1/4) of the shares vesting on the first anniversary of such grant, and the remaining shares vesting thereafter in equal monthly increments equal to one-forty-eighth (1/48) of the shares over the next three years, based on continuing service to the Company.

### Employment Agreement and Potential Payments Upon Termination or Change of Control

Bio-Path Subsidiary has entered into an employment agreement with its Chief Executive Officer, Peter H. Nielsen, dated May 1, 2007 (the “Nielsen Employment Agreement”).

The Nielsen Employment Agreement provides for a base salary, as approved by the Compensation Committee, of \$440,000. The Nielsen Employment Agreement provides that Mr. Nielsen is entitled to certain severance payments and benefits in the event he is terminated without Cause (as defined in the Nielsen Employment Agreement) or resigns for Good Reason (as defined in the Nielsen Employment Agreement), subject to Mr. Nielsen’s continued compliance with the Confidentiality Agreement (as defined in the Nielsen Employment Agreement) and execution of a general release of all claims against us. In addition, the Nielsen Employment Agreement also provides that Mr. Nielsen is entitled to certain severance payments and benefits in the event he is terminated without Cause or resigns for Good Reason within three months before or 12 months following a Change in Control (as defined in the Nielsen Employment Agreement), subject to Mr. Nielsen’s continued compliance with the Confidentiality Agreement and execution of a general release of all claims against us.

The severance payments and benefits include the following in the event Mr. Nielsen is terminated without Cause or resigns for Good Reason: (i) any accrued but untaken vacation days of Mr. Nielsen will be paid to the extent not yet paid; (ii) the equivalent of Mr. Nielsen’s base salary will be paid for a period of three months; and (iii) subject to certain restrictions, for three months after Mr. Nielsen’s date of termination, the Company will continue its contributions toward Mr. Nielsen’s health care, dental, disability and life insurance benefits on the same basis as immediately prior to the date of termination.

The severance payments and benefits include the following in the event Mr. Nielsen is terminated without Cause or resigns for Good Reason within three months before or 12 months following a Change in Control: (i) any unvested stock or stock options awarded to Mr. Nielsen shall immediately vest upon the occurrence of Mr. Nielsen’s termination of employment; (ii) Mr. Nielsen’s base salary will be paid through the termination date, and any accrued but untaken vacation days of Mr. Nielsen will be paid to the extent not yet paid; (iii) Mr. Nielsen’s normal post-termination benefits will be paid in accordance with our retirement, insurance and other benefit plan arrangements (including non-qualified deferred compensation plans); (iv) the equivalent of Mr. Nielsen’s base salary will be paid for a period of three months; (v) subject to certain restrictions, for six months after Mr. Nielsen’s date of termination, or such longer period as may be provided by the terms of the appropriate plan, program, practice of policy, Mr. Nielsen’s health care, dental, disability and life insurance benefits will be provided on the same basis as immediately prior to the date of termination; and (vi) subject to certain restrictions and to the extent not otherwise paid or provided, we will pay or provide any other amounts or benefits required to be paid or provided or which Mr. Nielsen is eligible to receive following his termination of employment under any of our plans, programs, policies, practices, contracts or agreements.

Potential severance payments and benefits to be paid pursuant to the Nielsen Employment Agreement assuming a termination or Change in Control occurred on December 31, 2024 are set forth in the table below.

Name	Benefit	Triggering Event	
		Termination without Cause or Resignation for Good Reason (\$)	Termination without Cause or Resignation for Good Reason within 3 Months Before or 12 Months Following a Change in Control (\$)
Peter H. Nielsen	Market Value of Stock Vesting	\$ —	\$ — <sup>(1)</sup>
	Accrued Vacation Days	40,615	40,615
	Three Months’ Base Salary	110,000	110,000
	Continuation of Benefits	4,354	8,709
	<b>Total</b>	<b>\$ 154,969</b>	<b>\$ 159,324</b>

(1) Mr. Nielsen’s stock option awards would immediately become vested, and the value of the acceleration would be equal to the vesting shares multiplied by the excess of the then current stock price over the exercise price of the options. For purposes of this table, we have calculated the value of the acceleration using the closing price of our common stock on December 31, 2024, or \$1.16 per share.

***Director Compensation***

The following table presents summary information for the year ended December 31, 2024 regarding the compensation of the members of our board of directors (other than Mr. Nielsen).

Name	Fees Earned or Paid in Cash	Option Awards	All Other Compensation	Total
Heath W. Cleaver	\$ 73,000 <sup>(1)</sup>	\$ 2,467 <sup>(2)</sup>	\$ —	\$ 75,467
Paul D. Aubert	\$ 61,500 <sup>(1)</sup>	\$ 2,467 <sup>(2)</sup>	\$ —	\$ 63,967
Aline B. Sherwood	\$ 64,500 <sup>(1)</sup>	\$ 2,467 <sup>(2)</sup>	\$ —	\$ 66,967
Douglas P. Morris <sup>(3)</sup>	\$ —	\$ 5,044 <sup>(4)</sup>	\$ 76,731 <sup>(5)</sup>	\$ 81,775

- (1) These amounts reflect cash fees paid to or earned by our non-employee directors for attending board or committee meetings during the year ended December 31, 2024.
- (2) In July 2024, our non-employee directors who were eligible at such time earned or received an annual grant of an option to purchase 2,000 shares of our common stock, which was the only grant received by such directors during 2024. The amounts in this column reflect the aggregate grant date fair value of equity awards granted during the year computed in accordance with FASB ASC Topic 718. See Note 10 to our condensed consolidated financial statements included in the Company's Quarterly Report on Form 10-Q for the nine months ended September 30, 2024 for assumptions made by us in such valuation with respect to the 2024 award.
- (3) Mr. Morris was hired by the Company in 2016 as the Company's Director of Investor Relations. Accordingly, Mr. Morris is not considered a non-employee director and does not receive compensation for his services as a member of our board of directors.
- (4) Option awards granted to Mr. Morris reflect compensation received by Mr. Morris in his capacity as the Company's Director of Investor Relations.
- (5) This amount reflects compensation received by Mr. Morris in his capacity as the Company's Director of Investor Relations, which includes base salary and certain other benefits.

The following table reflects the aggregate number of outstanding options (including unexercisable options) held by our directors (other than Mr. Nielsen) as of December 31, 2024:

Director	Number of shares underlying outstanding options
Heath W. Cleaver	4,121
Paul D. Aubert	4,101
Aline B. Sherwood	3,000
Douglas P. Morris <sup>(1)</sup>	6,158

- (1) Mr. Morris was hired by the Company in 2016 as the Company's Director of Investor Relations. Accordingly, Mr. Morris is not considered a non-employee director.

## **Narrative to Director Compensation Table**

In 2024, our non-employee directors received cash and equity compensation in accordance with our non-employee director compensation structure. Directors who were also employed by the Company did not receive compensation for services as directors. During 2024, our compensation structure for all non-employee directors was as follows:

### ***Cash Compensation Program***

Non-employee directors received as compensation an annual cash retainer in the amount of \$40,000.

The chairs of the respective board committees also received as compensation the following amounts: (i) an annual cash retainer in the amount of \$20,000 to the chair of the Audit Committee; (ii) an annual cash retainer in the amount of \$10,000 to the chair of the Compensation Committee; (iii) an annual cash retainer in the amount of \$8,000 to the chair of the Nominating/Corporate Governance Committee; and (iv) an annual cash retainer in the amount of \$8,000 to the chair of the Business Development Committee.

Non-chair members of the respective board committees also received as compensation the following amounts: (i) an annual cash retainer in the amount of \$7,500 to each member of the Audit Committee; (ii) an annual cash retainer in the amount of \$5,000 to each member of the Compensation Committee; and (iii) an annual cash retainer in the amount of \$4,000 to each member of the Nominating/Corporate Governance Committee.

In addition to the foregoing cash compensation for board and committee members, non-employee directors of the board who spent significant time performing board or committee service beyond the normal scope of their board or committee responsibilities could receive up to \$2,500 per diem at the discretion of the Chief Executive Officer of the Company.

### ***Equity Compensation Program***

Each non-employee director of the board also received as compensation an annual stock option grant (a “Grant”) of 2,000 shares of our common stock (the “Option Shares”). The exercise price of the Option Shares was determined by our board of directors, and the Option Shares vest over a one-year period from the date of the Grant, with the Option Shares vesting in equal monthly increments equal to one-twelfth (1/12) of the Option Shares, based on continuing service to the Company.



## CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS, AND DIRECTOR INDEPENDENCE

### Related Party Transactions

It is our policy that we will not enter into any transactions required to be disclosed under Item 404 of Regulation S-K promulgated by the SEC unless the Audit Committee first reviews and approves the transactions. The Audit Committee is required to review on an ongoing basis, and pre-approve all related party transactions before they are entered into, including those transactions that are required to be disclosed under Item 404 of Regulation S-K. Related party transactions involving a director must also be approved by the disinterested members of the Audit Committee. It is the responsibility of our employees and directors to disclose any significant financial interest in a transaction between the Company and a third party, including an indirect interest. All related party transactions shall be disclosed in our filings with the SEC as required under SEC rules.

In addition, pursuant to our codes of ethics, all employees, officers and directors of ours and our subsidiaries are prohibited from engaging in any relationship or financial interest that is an actual or potential conflict of interest with us without approval. Employees and officers are required to provide written disclosure to their supervisors as soon as they have any knowledge of a transaction or proposed transaction with an outside individual, business or other organization that would create a conflict of interest or the appearance of one. Directors are required to disclose such information to the Board or as otherwise required by law.

For our last two fiscal years, there has not been nor is there currently proposed any transaction or series of similar transactions to which we were or are to be a party in which the amount involved exceeds the lesser of \$120,000 or 1% of the average of our total assets at the end of our last two fiscal years, and in which any of our directors, executive officers, persons who we know hold more than 5% of our common stock, or any member of the immediate family of any of the foregoing persons had or will have a direct or indirect material interest other than: (i) compensation agreements and other arrangements, which are described elsewhere in this prospectus and (ii) the transactions described in the following paragraph.

We have entered into indemnity agreements with certain of our officers and directors which provide, among other things, that we will indemnify such officer or director, under the circumstances and to the extent provided for therein, for expenses, damages, judgments, fines and settlements he or she may be required to pay in actions or proceedings which he or she is or may be made a party by reason of his or her position as a director, officer or other agent of the Company, and otherwise to the fullest extent permitted under applicable law, our Certificate of Incorporation and our Bylaws.

### Director Independence

The following members of the Board have been identified as independent under the standards of The Nasdaq Stock Market: Heath W. Cleaver, Paul D. Aubert and Aline B. Sherwood. Presently, there are no directors on our Audit Committee, Nominating/Corporate Governance Committee or Compensation Committee who are not independent under the standards of The Nasdaq Stock Market.

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

The following table sets forth information regarding shares of our common stock beneficially owned at January 15, 2025 by: (i) our sole NEO and each director; (ii) all executive officers and directors as a group; and (iii) each person known by us to beneficially own 5% or more of the outstanding shares of our common stock. The information in this table is based solely on statements in filings with the SEC or other reliable information.

<b>Name of Beneficial Owner</b>	<b>Amount and Nature of Beneficial Ownership</b>	<b>Percent of Class</b>
Peter H. Nielsen <sup>(1) (2)</sup>	18,102	* %
Douglas P. Morris <sup>(1) (3)</sup>	2,513	*
Heath W. Cleaver <sup>(1) (4)</sup>	3,281	*
Aline B. Sherwood <sup>(1) (5)</sup>	2,167	*
Paul D. Aubert <sup>(1) (6)</sup>	3,268	*
All officers and directors as a group <sup>(7)</sup>	29,331	* %

\* Less than 1%

(1) These are our NEOs and directors.

(2) Includes 1,292 shares owned of record and 16,810 shares issuable upon the exercise of options that are exercisable within 60 days.

(3) Includes 403 shares held by Hyacinth Resources, LLC and 7 shares held by Sycamore Ventures, LLC. Mr. Morris disclaims beneficial ownership of the shares held by Sycamore Ventures, LLC except to the extent of his pecuniary interest therein. Also includes 2,103 shares issuable upon the exercise of options that are exercisable within 60 days.

(4) All 3,281 shares are issuable upon the exercise of options that are exercisable within 60 days.

(5) All 2,167 shares are issuable upon the exercise of options that are exercisable within 60 days.

(6) All 3,268 shares are issuable upon the exercise of options that are exercisable within 60 days.

(7) Includes 1,702 shares owned of record and 27,629 shares issuable upon the exercise of options currently exercisable or will be exercisable within 60 days.

## DESCRIPTION OF CAPITAL STOCK

The following description of our common stock and preferred stock is a summary. It is not complete and is subject to and qualified in its entirety by our certificate of incorporation and first amended and restated bylaws, as amended. See the section titled “Where You Can Find More Information.” As of the date of this prospectus, our certificate of incorporation authorizes us to issue 200,000,000 shares of common stock, par value \$0.001 per share, and 10,000,000 shares of preferred stock, par value \$0.001 per share. As of January 15, 2025, there were 5,767,892 shares of common stock issued and outstanding and no shares of preferred stock issued and outstanding.

### Common Stock

Holders of common stock are entitled to one vote for each share held in the election of directors and on all other matters submitted to a vote of stockholders. Cumulative voting of shares of common stock is prohibited. Accordingly, holders of a majority of the shares of common stock entitled to vote in any election of directors may elect all of the directors standing for election.

Subject to the prior rights of the holders of any outstanding preferred stock, holders of common stock are entitled to receive dividends when, as and if declared by our board of directors out of funds legally available therefor. Upon the liquidation, dissolution or winding up of our company, the holders of common stock are entitled to receive ratably the assets of our company remaining after payment of all liabilities and payment to holders of preferred stock if such preferred stock has an involuntary liquidation preference over the common stock. Holders of common stock have no preemptive, subscription, redemption or conversion rights. The outstanding shares of common stock are, and the shares offered by us in this offering will be, when issued and paid for, validly issued, fully paid and nonassessable.

As of January 2, 2025, there were approximately 197 holders of record of our common stock.

### Preferred Stock

The board of directors is authorized, without any further notice to or action of the stockholders, to issue 10,000,000 shares of preferred stock in one or more series and to determine the relative rights, preferences and privileges of the shares of any such series.

### Limitation on Liability and Indemnification of Officers and Directors

Our certificate of incorporation and first amended and restated bylaws, as amended, provide for indemnification of our officers and directors to the fullest extent permitted by Delaware law. Our certificate of incorporation and first amended and restated bylaws, as amended, limit the liability of our directors for monetary damages to the fullest extent permitted by Delaware law. We maintain directors’ and officers’ liability insurance.

### Anti-Takeover Effects of Provisions of Our Certificate of Incorporation, Our Bylaws and Delaware Law

Some provisions of Delaware law and our certificate of incorporation and our first amended and restated bylaws, as amended, contain provisions that could have the effect of delaying, deterring or preventing another party from acquiring or seeking to acquire control of us. These provisions are intended to discourage certain types of coercive takeover practices and inadequate takeover bids and to encourage anyone seeking to acquire control of us to negotiate first with our board of directors. However, these provisions may also delay, deter or prevent a change in control or other takeover of our company that our stockholders might consider to be in their best interests, including transactions that might result in a premium being paid over the market price of our common stock and also may limit the price that investors are willing to pay in the future for our common stock. These provisions may also have the effect of preventing changes in our management.

Our certificate of incorporation and first amended and restated bylaws, as amended, include anti-takeover provisions that:

- authorize our board of directors, without further action by the stockholders, to issue shares of preferred stock in one or more series, and with respect to each series, to fix the number of shares constituting that series and establish the rights and other terms of that series;

- establish advance notice procedures for stockholders to submit nominations of candidates for election to our board of directors and other proposals to be brought before a stockholders meeting;
- provide that our first amended and restated bylaws, as amended, may be amended by our board of directors without stockholder approval;
- limit our stockholders' ability to call special meetings of stockholders;
- allow our directors to establish the size of the board of directors by action of the board, subject to a minimum of three members;
- provide that vacancies on our board of directors or newly created directorships resulting from an increase in the number of our directors may be filled only by a majority of directors then in office, even though less than a quorum; and
- do not give the holders of our common stock cumulative voting rights with respect to the election of directors.

### **Business Combinations**

Section 203 of the Delaware General Corporation Law provides that we may not engage in certain "business combinations" with any "interested stockholder" for a three-year period following the time that the person became an interested stockholder, unless:

- prior to the time that person became an interested stockholder, our board of directors approved either the business combination or the transaction which resulted in the person becoming an interested stockholder;
- upon consummation of the transaction which resulted in the person becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding certain shares; or
- at or subsequent to the time the person became an interested stockholder, the business combination is approved by the board of directors and by the affirmative vote of at least  $66\frac{2}{3}\%$  of the outstanding voting stock which is not owned by the interested stockholder.

Generally, a business combination includes a merger, consolidation, asset or stock sale or other transaction resulting in a financial benefit to the interested stockholder. Subject to certain exceptions, an interested stockholder is a person who, together with that person's affiliates and associates, owns, or within the previous three years owned, 15% or more of our voting stock. The statute could prohibit or delay mergers or other takeover or change in control attempts with respect to us and, accordingly, may discourage attempts to acquire us.

### **Transfer Agent and Registrar**

The transfer agent and registrar for our common stock is Equiniti Trust Company, LLC, 6201 15<sup>th</sup> Avenue, Brooklyn, New York 11219. Its phone number is (800) 937-5449.

### **Listing**

Our common stock is listed for trading on the Nasdaq Capital Market under the symbol "BPTH."

## DESCRIPTION OF SECURITIES WE ARE OFFERING

We are offering up to \_\_\_\_\_ shares of our common stock and \_\_\_\_\_ Common Warrants to purchase up to \_\_\_\_\_ shares of our common stock. In addition, we are also offering Pre-Funded Warrants in lieu of shares of common stock to those investors whose purchase of shares of our common stock in this offering would result in the investor, together with its affiliates and certain related parties, beneficially owning more than 4.99% (or, at the election of the investor, 9.99%) of our outstanding common stock following the consummation of this offering. For each Pre-Funded Warrant we sell, the number of shares of common stock we are offering will be decreased on a one-for-one basis. We are also offering the shares of common stock issuable from time to time upon exercise of the Pre-Funded Warrants and the Common Warrants offered hereby.

### Common Stock

The material terms and provisions of our common stock are described under the heading “Description of Capital Stock” in this prospectus.

### Pre-Funded Warrants

*The following summary of certain terms and provisions of Pre-Funded Warrants that are being offered hereby is not complete and is subject to, and qualified in its entirety by, the provisions of the Pre-Funded Warrant, the form of which is filed as an exhibit to the registration statement of which this prospectus forms a part. Prospective investors should carefully review the terms and provisions of the form of Pre-Funded Warrant for a complete description of the terms and conditions of the Pre-Funded Warrants.*

*Duration, Exercise Price and Form.* Each Pre-Funded Warrant offered hereby will have an initial exercise price per share equal to \$0.001. The Pre-Funded Warrants will be immediately exercisable and may be exercised at any time until the Pre-Funded Warrants are exercised in full. The exercise price and number of shares of common stock issuable upon exercise is subject to appropriate adjustment in the event of stock dividends, stock splits, reorganizations or similar events affecting our common stock and the exercise price. The Pre-Funded Warrants will be issued separately from the accompanying Common Warrants and may be transferred separately immediately thereafter. The Pre-Funded Warrants will be issued in certificated form only.

*Exercisability.* The Pre-Funded Warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our common stock purchased upon such exercise (except in the case of a cashless exercise as discussed below). Purchasers of the Pre-Funded Warrants in this offering may elect to deliver their exercise notice following the pricing of the offering and prior to the issuance of the Pre-Funded Warrants at closing to have their Pre-Funded Warrants exercised immediately upon issuance and receive shares of common stock underlying the Pre-Funded Warrants upon closing of this offering. A holder (together with its affiliates) may not exercise any portion of the Pre-Funded Warrant to the extent that the holder would own more than 4.99% of the outstanding common stock immediately after exercise, except that upon at least 61 days’ prior notice from the holder to us, the holder may increase the amount of ownership of outstanding stock after exercising the holder’s Pre-Funded Warrants up to 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the Pre-Funded Warrants. Purchasers of Pre-Funded Warrants in this offering may also elect prior to the issuance of the Pre-Funded Warrants to have the initial exercise limitation set at 9.99% of our outstanding common stock.

*Fractional Shares.* No fractional shares of common stock will be issued in connection with the exercise of a Pre-Funded Warrant. In lieu of fractional shares, we will either round up to the nearest whole number or pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the exercise price.

*Cashless Exercise.* If, at the time a holder exercises its Pre-Funded Warrants, in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of common stock determined according to a formula set forth in the Pre-Funded Warrants.

*Transferability.* Subject to applicable laws, a Pre-Funded Warrant may be transferred at the option of the holder upon surrender of the Pre-Funded Warrant to us together with the appropriate instruments of transfer.

*Exchange Listing.* There is no trading market available for the Pre-Funded Warrants on any securities exchange or nationally recognized trading system. We do not intend to list the Pre-Funded Warrants on any securities exchange or nationally recognized trading system.

*Right as a Stockholder.* Except as otherwise provided in the Pre-Funded Warrants or by virtue of such holder's ownership of shares of our common stock, the holders of the Pre-Funded Warrants do not have the rights or privileges of holders of our common stock, including any voting rights, until they exercise their Pre-Funded Warrants.

*Fundamental Transaction.* In the event of a fundamental transaction, as described in the Pre-Funded Warrants and generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the acquisition of greater than 50% of our outstanding common stock, or any person or group becoming the beneficial owner of greater than 50% of the voting power represented by our outstanding common stock, the holders of the Pre-Funded Warrants will be entitled to receive upon exercise of the Pre-Funded Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the Pre-Funded Warrants immediately prior to such fundamental transaction.

## **Common Warrants**

*The following summary of certain terms and provisions of Common Warrants that are being offered hereby is not complete and is subject to, and qualified in its entirety by, the provisions of the Common Warrants, the form of which is filed as an exhibit to the registration statement of which this prospectus forms a part. Prospective investors should carefully review the terms and provisions of the form of Common Warrants for a complete description of the terms and conditions of the Common Warrants.*

### *Series A Warrants*

**Duration, Exercise Price and Form.** Each Series A Warrants offered hereby will have an initial exercise price per share equal to \$ . The Series A Warrants will be exercisable on the Warrant Stockholder Approval Date, provided that if the Pricing Conditions are met, the Series A Warrants will be immediately exercisable. The Series A Warrants will expire five years from the Warrant Stockholder Approval Date, provided that if the Pricing Conditions are met, the Series A Warrants will expire five years from the date of issuance. The exercise price and number of shares of common stock issuable upon exercise is subject to appropriate adjustment in the event of stock dividends, stock splits, reorganizations or similar events affecting our common stock and the exercise price. The Series A Warrants will be issued separately from the common stock and will be held separately immediately thereafter. A Series A Warrant to purchase one share of our common stock will be issued for every share of common stock or Pre-Funded Warrant purchased in this offering. The Series A Warrants will be issued in certificated form only.

We intend to promptly, and in no event later than days after the consummation of this offering, seek the Warrant Stockholder Approval for the issuance of shares of common stock issuable upon exercise of the Series A Warrants but we cannot assure you that the Warrant Stockholder Approval will be obtained, provided, however, that if and only if the Pricing Conditions are met, then we will not seek Warrant Stockholder Approval. We have agreed with the investors in this offering that, if we do not obtain stockholder approval for the issuance of the shares of common stock upon exercise of the Series A Warrants at the first stockholder meeting for such purpose after this offering, we will call a stockholder meeting every days thereafter until the earlier of the date we obtain such approval or the Series A Warrants are no longer outstanding.

*Exercisability.* The Series A Warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our common stock purchased upon such exercise (except in the case of a cashless exercise as discussed below). A holder (together with its affiliates) may not exercise any portion of the Series A Warrant to the extent that the holder would own more than 4.99% of the outstanding common stock immediately after exercise, except that upon at least 61 days' prior notice from the holder to us, the holder may increase the amount of ownership of outstanding stock after exercising the holder's Series A Warrants up to 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the Series A Warrants. No Series A Warrants exercisable for a fractional share will be issued in this offering.

*Cashless Exercise.* If, at the time a holder exercises its Series A Warrants, a registration statement registering the issuance of the shares of common stock underlying the Series A Warrants under the Securities Act is not then effective or available and an exemption

from registration under the Securities Act is not available for the issuance of such shares, then in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of common stock determined according to a formula set forth in the Series A Warrants.

*Fractional Shares.* No fractional shares of common stock will be issued upon the exercise of the Series A Warrants. In lieu of fractional shares, we will either round up to the nearest whole number or pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the exercise price.

*Transferability.* Subject to applicable laws, a Series A Warrant may be transferred at the option of the holder upon surrender of the Series A Warrants to us together with the appropriate instrument of transfer.

*Exchange Listing.* There is no established public trading market for the Series A Warrants, and we do not expect a market to develop. In addition, we do not intend to list the Series A Warrants on any securities exchange or nationally recognized trading system. Without an active trading market, the liquidity of the Series A Warrants will be limited.

*Right as a Stockholder.* Except as otherwise provided in the Series A Warrants or by virtue of such holder's ownership of shares of our common stock, the holders of the Series A Warrants do not have the rights or privileges of holders of our common stock, including any voting rights, until they exercise their Series A Warrants.

*Fundamental Transaction.* In the event of a fundamental transaction, as described in the form of Series A Warrant, and generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the acquisition of greater than 50% of our outstanding common stock, or any person or group becoming the beneficial owner of greater than 50% of the voting power represented by our outstanding common stock, the holders of the Series A Warrants will be entitled to receive upon exercise of the Series A Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the Series A Warrants immediately prior to such fundamental transaction. In addition, in certain circumstances, upon a fundamental transaction, the holder of a Series A Warrant will have the right to require us to repurchase its Series A Warrants at the Black-Scholes value; provided, however, that, if the fundamental transaction is not within our control, including not approved by our board of directors, then the holder will only be entitled to receive the same type or form of consideration (and in the same proportion), at the Black-Scholes value of the unexercised portion of the Series A Warrant that is being offered and paid to the holders of our common stock in connection with the fundamental transaction.

#### *Series B Warrants*

*Duration, Exercise Price and Form.* Each Series B Warrants offered hereby will have an initial exercise price per share equal to \$ . The Series B Warrants will be exercisable on the Warrant Stockholder Approval Date, provided that if the Pricing Conditions are met, the Series B Warrants will be immediately exercisable. The Series B Warrants will expire twenty-four months from the Warrant Stockholder Approval Date, provided that if the Pricing Conditions are met, the Series B Warrants will expire twenty-four months from the date of issuance. The exercise price and number of shares of common stock issuable upon exercise is subject to appropriate adjustment in the event of stock dividends, stock splits, reorganizations or similar events affecting our common stock and the exercise price. The Series B Warrants will be issued separately from the common stock and will be held separately immediately thereafter. A Series B Warrant to purchase one share of our common stock will be issued for every share of common stock or Pre-Funded Warrant purchased in this offering. The Series B Warrants will be issued in certificated form only.

We intend to promptly, and in no event later than days after the consummation of this offering, seek the Warrant Stockholder Approval for the issuance of shares of common stock issuable upon exercise of the Series B Warrants but we cannot assure you that the Warrant Stockholder Approval will be obtained, provided, however, that if and only if the Pricing Conditions are met, then we will not seek Warrant Stockholder Approval. We have agreed with the investors in this offering that, if we do not obtain stockholder approval for the issuance of the shares of common stock upon exercise of the Series B Warrants at the first stockholder meeting for such purpose after this offering, we will call a stockholder meeting every days thereafter until the earlier of the date we obtain such approval or the Series B Warrants are no longer outstanding.

*Exercisability.* The Series B Warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our common stock purchased upon such exercise (except in the case of a cashless exercise as discussed below). A holder (together with its affiliates) may not exercise any portion of the Series B Warrant to the extent that the holder would own more than 4.99% of the outstanding common stock immediately after exercise, except that upon at least 61 days' prior notice from the holder to us, the holder may increase the amount of ownership of outstanding stock after exercising the holder's Series B Warrants up to 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the Series B Warrants. No Series B Warrants exercisable for a fractional share will be issued in this offering.

*Cashless Exercise.* If, at the time a holder exercises its Series B Warrants, a registration statement registering the issuance of the shares of common stock underlying the Series B Warrants under the Securities Act is not then effective or available and an exemption from registration under the Securities Act is not available for the issuance of such shares, then in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of common stock determined according to a formula set forth in the Series B Warrants.

*Fractional Shares.* No fractional shares of common stock will be issued upon the exercise of the Series B Warrants. In lieu of fractional shares, we will either round up to the nearest whole number or pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the exercise price.

*Transferability.* Subject to applicable laws, a Series B Warrant may be transferred at the option of the holder upon surrender of the Series B Warrants to us together with the appropriate instrument of transfer.

*Exchange Listing.* There is no established public trading market for the Series B Warrants, and we do not expect a market to develop. In addition, we do not intend to list the Series B Warrants on any securities exchange or nationally recognized trading system. Without an active trading market, the liquidity of the Series B Warrants will be limited.

*Right as a Stockholder.* Except as otherwise provided in the Series B Warrants or by virtue of such holder's ownership of shares of our common stock, the holders of the Series B Warrants do not have the rights or privileges of holders of our common stock, including any voting rights, until they exercise their Series B Warrants.

*Fundamental Transaction.* In the event of a fundamental transaction, as described in the form of Series B Warrant, and generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the acquisition of greater than 50% of our outstanding common stock, or any person or group becoming the beneficial owner of greater than 50% of the voting power represented by our outstanding common stock, the holders of the Series B Warrants will be entitled to receive upon exercise of the Series B Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the Series B Warrants immediately prior to such fundamental transaction. In addition, in certain circumstances, upon a fundamental transaction, the holder of a Series B Warrant will have the right to require us to repurchase its Series B Warrants at the Black-Scholes value; provided, however, that, if the fundamental transaction is not within our control, including not approved by our board of directors, then the holder will only be entitled to receive the same type or form of consideration (and in the same proportion), at the Black-Scholes value of the unexercised portion of the Series B Warrant that is being offered and paid to the holders of our common stock in connection with the fundamental transaction.

### **Placement Agent Warrants**

We have also agreed to issue to the Placement Agent or its designees, the Placement Agent Warrants as compensation in connection with this offering to purchase up to \_\_\_\_\_ shares of common stock as compensation in connection with this offering. The Placement Agent Warrants will be exercisable on the Warrant Stockholder Approval Date, provided that if the Pricing Conditions are met, the Common Warrants will be exercisable immediately and will have substantially the same terms as the Common Warrants described above, except that the Placement Agent Warrants will have an exercise price of \$ \_\_\_\_\_ per share (representing \_\_\_\_\_ % of the combined public offering price per share and accompanying Common Warrants) and a termination date that will be five years from the commencement of the sales pursuant to this offering. See "Plan of Distribution" below.



## PLAN OF DISTRIBUTION

Pursuant to an engagement agreement, dated [REDACTED], 2024, we have engaged [REDACTED], to act as our exclusive placement agent to solicit offers to purchase the securities offered pursuant to this prospectus on a reasonable best efforts basis. The engagement agreement does not give rise to any commitment by the Placement Agent to purchase any of our securities, and the Placement Agent will have no authority to bind us by virtue of the engagement agreement. The Placement Agent is not purchasing or selling any of the securities offered by us under this prospectus, nor is it required to arrange for the purchase or sale of any specific number or dollar amount of securities. This is a best efforts offering and there is no minimum offering amount required as a condition to the closing of this offering. The Placement Agent has agreed to use reasonable best efforts to arrange for the sale of the securities by us. Therefore, we may not sell all of the shares of common stock, Pre-Funded Warrants and Common Warrants being offered. The terms of this offering are subject to market conditions and negotiations between us, the Placement Agent and prospective investors. The Placement Agent does not guarantee that it will be able to raise new capital in any prospective offering. The Placement Agent may engage sub-agents or selected dealers to assist with the offering.

Investors purchasing securities offered hereby will have the option to execute a securities purchase agreement with us. In addition to rights and remedies available to all purchasers in this offering under federal securities and state law, the purchasers which enter into a securities purchase agreement will also be able to bring claims of breach of contract against us. The ability to pursue a claim for breach of contract is material to larger purchasers in this offering as a means to enforce the following covenants uniquely available to them under the securities purchase agreement: (i) a covenant to not enter into variable rate financings for a period of following the closing of the offering, subject to certain exceptions; and (ii) a covenant to not enter into any equity financings for days from closing of the offering, subject to certain exceptions. The nature of the representations, warranties and covenants in the securities purchase agreements shall include:

- standard issuer representations and warranties on matters such as organization, qualification, authorization, no conflict, no governmental filings required, current in SEC filings, no litigation, labor or other compliance issues, environmental, intellectual property and title matters and compliance with various laws such as the Foreign Corrupt Practices Act; and
- covenants regarding matters such as registration of warrant shares, no integration with other offerings, no stockholder rights plans, no material nonpublic information, use of proceeds, indemnification of purchasers, reservation and listing of shares of common stock, and no subsequent equity sales for [REDACTED] days.

We expect to deliver the shares of common stock, the Pre-Funded Warrants and the Common Warrants being offered pursuant to this prospectus on or about [REDACTED], 2025. There is no minimum number of securities or amount of proceeds that is a condition to closing of this offering.

### *Fees and Expenses*

We have agreed to pay the Placement Agent a total cash fee equal to [REDACTED] % of the aggregate gross proceeds raised in the offering and a management fee equal to [REDACTED] % of the gross proceeds raised in the offering. We will reimburse the Placement Agent a nonaccountable expense allowance of \$ [REDACTED], its legal fees and expenses in an amount up to \$ [REDACTED] and its clearing expense in an amount up to \$ [REDACTED] in connection with this offering. We estimate the total offering expenses of this offering that will be payable by us, excluding the Placement Agent fees and expenses, will be approximately \$ [REDACTED].

### *Placement Agent Warrants*

In addition, we have agreed to issue to the Placement Agent or its designees the Placement Agent Warrants, to purchase up to [REDACTED] % of the aggregate number of shares of common stock sold in this offering (including shares underlying any Pre-Funded Warrants), at an exercise price equal to [REDACTED] % of the public offering price per share and accompanying Common Warrants to be sold in this offering. The Placement Agent Warrants will be exercisable on the Warrant Stockholder Approval Date, provided that if the Pricing Conditions are met, the Common Warrants will be exercisable immediately and will expire five years from the commencement of sales under this offering. If at the time of exercise there is no effective registration statement registering, or the prospectus contained therein is not available for the resale of warrant shares by the holders of the Placement Agent warrants, then the Placement Agent warrants may be exercised, in whole or in part, at such time by means of a “cashless exercise” in which the holders shall be entitled to receive a number of warrant shares as calculated in the Placement Agent warrants.

The Placement Agent Warrants provide for customary anti-dilution provisions (for share dividends, splits and recapitalizations and the like) consistent with FINRA Rule 5110. Pursuant to FINRA Rule 5110(e), the Placement Agent Warrants and any shares issuable thereunder shall not be sold, transferred, assigned, pledged, or hypothecated, or be the subject of any hedging, short sale, derivative, put or call transaction that would result in the effective economic disposition of the securities by any person for a period of 180 days immediately following the date of commencement of sales of this offering, except the transfer of any security: (i) by operation of law or by reason of reorganization of the issuer; (ii) to any FINRA member firm participating in the offering and the officers, partners, registered persons or affiliates thereof, if all securities so transferred remain subject to the lock-up restriction set forth above for the remainder of the time period; (iii) if the aggregate amount of our securities held by the Placement Agent persons does not exceed 1% of the securities being offered; (iv) that is beneficially owned on a pro-rata basis by all equity owners of an investment fund, provided that no participating member manages or otherwise directs investments by the fund and the participating members in the aggregate do not own more than 10% of the equity in the fund; (v) the exercise or conversion of any security, if all securities remain subject to the lock-up restriction set forth above for the remainder of the time period; (vi) so long as we continue to meet the registration requirements of Forms S-3; or (vii) back to us in a transaction exempt from registration under the Securities Act.

### ***Tail***

In the event that any investors that were introduced to the Company by the Placement Agent (or with whom the Company had a meeting regarding the offering) during the term of our engagement agreement with the Placement Agent provide any capital to us in a public or private offering or capital-raising transaction within twenty-four (24) months following the termination or expiration of our engagement agreement with the Placement Agent, we shall pay the Placement Agent the cash and warrant compensation provided above on the gross proceeds from such investors. The Placement Agent will only be entitled to such fee to the extent that the parties are directly introduced to us by the Placement Agent, in accordance with FINRA Rule 2010.

### ***Right of First Refusal***

Subject to consummation of the offering, we have granted a right of first refusal to the Placement Agent pursuant to which it has the right to act as the sole book-running manager, underwriter or Placement Agent, as applicable, if we decide to raise capital through a public offering (including an at-the-market facility) or private placement or any other capital-raising financing of equity, equity-linked or debt securities pursuant to which we engage an investment bank or broker/dealer at any time prior to the twenty-four (24) months following the consummation of this offering.

### ***Lock-Up Agreements***

Our officers and directors have agreed with the Placement Agent to be subject to a lock-up period of \_\_\_\_\_ days following the closing of this offering. This means that, during the applicable lock-up period, such persons may not offer for sale, contract to sell, sell, distribute, grant any option, right or warrant to purchase, pledge, hypothecate or otherwise dispose of, directly or indirectly, any shares of our common stock or any securities convertible into, or exercisable or exchangeable for, shares of our common stock. Certain limited transfers are permitted during the lock-up period if the transferee agrees to these lock-up restrictions. The Placement Agent may, in its sole discretion and without notice, waive the terms of any of these lock-up agreements.

We have also agreed to similar lock-up restrictions on the issuance and sale of our securities for \_\_\_\_\_ days following the closing of this offering, subject to certain exceptions. In addition, subject to certain exceptions, we have agreed to not issue any securities that are subject to a price reset based on the trading prices of our common stock or upon a specified or contingent event in the future, or enter into any agreement to issue securities at a future determined price for a period of one year following the closing date of this offering.

### ***Indemnification***

We have agreed to indemnify the Placement Agent against certain liabilities, including certain liabilities under the Securities Act, or to contribute to payments that the Placement Agent may be required to make in respect of those liabilities.

In addition, we will indemnify the purchasers of securities in this offering against liabilities arising out of or relating to (i) any breach of any of the representations, warranties, covenants or agreements made by us in the securities purchase agreement or related documents or (ii) any action instituted against a purchaser by a third party (other than a third party who is affiliated with such purchaser) with respect to the securities purchase agreement or related documents and the transactions contemplated thereby, subject to certain exceptions.

### ***Regulation M Compliance***

The Placement Agent may be deemed to be an underwriter within the meaning of Section 2(a)(11) of the Securities Act, and any fees received by it and any profit realized on the sale of our securities offered hereby by it while acting as principal might be deemed to be underwriting discounts or commissions under the Securities Act. The Placement Agent will be required to comply with the requirements of the Securities Act and the Exchange Act, including, without limitation, Rule 10b-5 and Regulation M under the Exchange Act. These rules and regulations may limit the timing of purchases and sales of our securities by the Placement Agent. Under these rules and regulations, the Placement Agent may not (i) engage in any stabilization activity in connection with our securities; and (ii) bid for or purchase any of our securities or attempt to induce any person to purchase any of our securities, other than as permitted under the Exchange Act, until they have completed their participation in the distribution.

### ***Other Relationships***

The Placement Agent and its affiliates have engaged, and may in the future engage, in investment banking transactions and other commercial dealings in the ordinary course of business with us or our affiliates. The Placement Agent has received, or may in the future receive, customary fees and commissions for these transactions.

In addition, in the ordinary course of their business activities, the Placement Agent and its affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) for their own account and for the accounts of their customers. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. The Placement Agent and its affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

### ***Electronic Distribution***

A prospectus in electronic format may be made available on a website maintained by the Placement Agent and the Placement Agent may distribute prospectuses electronically. Other than the prospectus in electronic format, the information on these websites is not part of this prospectus or the registration statement of which this prospectus forms a part, has not been approved and/or endorsed by us or the Placement Agent and should not be relied upon by investors.

### ***Transfer Agent***

The transfer agent and registrar for our common stock is Equiniti Trust Company, LLC.

### ***Nasdaq listing***

Our shares of common stock are listed on Nasdaq under the symbol "BPTH."

### ***Other Relationships***

From time to time, the Placement Agent may provide in the future various advisory, investment and commercial banking and other services to us in the ordinary course of business, for which they have received and may continue to receive customary fees and commissions. However, except as disclosed in this prospectus, we have no present arrangements with the Placement Agent for any further services.

In addition, in the ordinary course of their business activities, the Placement Agent and its affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) for their own account and for the accounts of their customers. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. The Placement Agent and its affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Except as disclosed in this prospectus, we have no present arrangements with the Placement Agent for any further services.

## LEGAL MATTERS

The validity of the issuance of the securities offered hereby will be passed upon for us by Winstead PC, Houston, Texas. Certain legal matters will be passed upon for the Placement Agent by \_\_\_\_\_.

## EXPERTS

The consolidated financial statements of Bio-Path Holdings, Inc. at December 31, 2023 and 2022, and for each of the two years in the period ended December 31, 2023, appearing in this Prospectus and Registration Statement have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon (which contains an explanatory paragraph describing conditions that raise substantial doubt about the Company's ability to continue as a going concern as described in Note 2 to the consolidated financial statements), appearing elsewhere herein, and are included in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

## WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the securities being offered hereby. This prospectus, which constitutes a part of the registration statement, does not contain all of the information set forth in the registration statement or the exhibits and schedules filed therewith. For further information about us and the securities offered hereby, we refer you to the registration statement and the exhibits filed thereto. Statements contained in this prospectus regarding the contents of any contract or any other document that is filed as an exhibit to the registration statement are not necessarily complete, and each such statement is qualified in all respects by reference to the full text of such contract or other document filed as an exhibit to the registration statement.

We file annual, quarterly and current reports, proxy statements and other information with the SEC. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, including us. The SEC's Internet site can be found at <http://www.sec.gov>. In addition, we make available on or through our Internet site copies of these reports as soon as reasonably practicable after we electronically file or furnished them to the SEC. Our Internet site can be found at <http://www.biopathholdings.com>. The information contained in, or that can be accessed through, our website is not incorporated by reference in, and is not part of, this prospectus.

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## **Report of Independent Registered Public Accounting Firm**

**To the Shareholders and the Board of Directors of Bio-Path Holdings, Inc.**

### **Opinion on the Financial Statements**

We have audited the accompanying consolidated balance sheets of Bio-Path Holdings, Inc. (the Company) as of December 31, 2023 and 2022, the related consolidated statements of operations, shareholders' equity and cash flows for each of the two years in the period ended December 31, 2023, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2023, in conformity with U.S. generally accepted accounting principles.

### **The Company's Ability to Continue as a Going Concern**

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 2 to the financial statements, the Company has suffered recurring losses from operations and has stated that substantial doubt exists about the Company's ability to continue as a going concern. Management's evaluation of the events and conditions and management's plans regarding these matters are also described in Note 2. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

### **Basis for Opinion**

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting 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.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

### **Critical Audit Matter**

The critical audit matter communicated below is a matter arising from the current period audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of the critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosure to which it relates.

***Prepaid or Accrued Research and Development Expenses***

*Description of the Matter*

During 2023, the Company incurred \$11.6 million for research and development expenses and as of December 31, 2023 recorded prepaid clinical trial expenses of \$0.9 million and accrued clinical trial expense of \$0.8 million. As disclosed in Note 2 to the consolidated financial statements, research and development costs are charged to expense when the related goods are delivered, or services are performed. The Company estimated its clinical trial expense based on a cost per patient calculation, which is derived from estimated start-up costs, clinical trial costs based on the number of patients and length of treatment and clinical study report costs. The Company recorded an accrual or prepaid for clinical trial expenses based on its estimated clinical trial expense as compared to payments made to the Company's third-party clinical research organization, laboratories and clinical investigation sites.

Auditing the Company's accrued and prepaid research and development expenses is complex due to significant judgment and estimates made by management in determining the clinical trial expenses incurred, which include inputs such as number of patients, length of treatment and clinical study report costs, compared to payments the Company has made.

*How We Addressed the Matter in Our Audit*

To test the prepaid research and development expenses for significant clinical trials, our audit procedures included, among others, testing the accuracy and completeness of the underlying data used in the estimates and evaluating the significant assumptions that are used by management to estimate the recorded prepayments. To test the significant assumptions, we corroborated the patient enrollment, length of treatment, trial timeline and progress of research and development activities through discussion with the Company's research and development personnel that oversee the research and development projects, inspected the Company's contracts with third parties and any pending change orders to assess the impact on amounts recorded, and obtained information directly from vendors of their costs incurred to date. We tested a sample of transactions and compared the costs against related invoices and contracts. We also performed analytics over fluctuations in accruals or prepaid balances by trial throughout the year and tested subsequent payments to evaluate the completeness of the research and development expenses recognized.

/s/ Ernst & Young

We have served as the Company's auditor since 2020.

Houston, Texas

March 7, 2024

**BIO-PATH HOLDINGS, INC.**  
**CONSOLIDATED BALANCE SHEETS**  
**(In thousands, except par value)**

	As of December 31, 2023	As of December 31, 2022
<b>Assets</b>		
Current assets		
Cash	\$ 1,052	\$ 10,384
Prepaid drug product	632	3,587
Other current assets	1,358	1,644
<b>Total current assets</b>	<b>3,042</b>	<b>15,615</b>
Fixed assets		
Furniture, fixtures & equipment	1,120	1,120
Less accumulated depreciation	(1,044)	(962)
	76	158
Right of use operating assets	102	198
<b>Total Assets</b>	<b>\$ 3,220</b>	<b>\$ 15,971</b>
<b>Liabilities &amp; Shareholders' Equity</b>		
Current liabilities		
Accounts payable	\$ 457	\$ 667
Accrued expenses	1,346	909
Current portion of lease liabilities	103	108
<b>Total current liabilities</b>	<b>1,906</b>	<b>1,684</b>
Warrant liability	863	—
Noncurrent lease liabilities	10	113
<b>Total Liabilities</b>	<b>2,779</b>	<b>1,797</b>
Shareholders' equity		
Preferred stock, \$.001 par value; 10,000 shares authorized; no shares issued and outstanding	—	—
Common stock, \$.001 par value; 200,000 shares authorized; 618 and 398 shares issued and outstanding, respectively	1	1
Additional paid in capital	108,047	105,702
Accumulated deficit	(107,607)	(91,529)
<b>Total shareholders' equity</b>	<b>441</b>	<b>14,174</b>
<b>Total Liabilities &amp; Shareholders' Equity</b>	<b>\$ 3,220</b>	<b>\$ 15,971</b>

SEE ACCOMPANYING NOTES TO CONSOLIDATED FINANCIAL STATEMENTS



**BIO-PATH HOLDINGS, INC.**  
**CONSOLIDATED STATEMENTS OF OPERATIONS**  
**(In thousands, except per share amounts)**

	<u>Year Ended December 31,</u>	
	<u>2023</u>	<u>2022</u>
<b>Operating expenses</b>		
Research and development	\$ 11,608	\$ 9,165
General and administrative	4,235	4,736
Total operating expenses	<u>15,843</u>	<u>13,901</u>
<b>Net operating loss</b>	<u>\$ (15,843)</u>	<u>\$ (13,901)</u>
<b>Other income (loss)</b>		
Change in fair value of warrant liability	(271)	—
Interest income	36	33
<b>Total other income (loss)</b>	<u>(235)</u>	<u>33</u>
<b>Net loss</b>	<u>\$ (16,078)</u>	<u>\$ (13,868)</u>
<b>Net loss per share, basic and diluted</b>	<u>\$ (33.63)</u>	<u>\$ (38.12)</u>
<b>Basic and diluted weighted average number of common shares outstanding</b>	<u>478</u>	<u>364</u>

SEE ACCOMPANYING NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

**BIO-PATH HOLDINGS, INC.****CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY**  
(in thousands)

Description	Common Stock		Additional Paid in Capital	Accumulated Deficit	Total
	Shares	Amount			
<b>Balance at December 31, 2021</b>	<b>358</b>	<b>\$ 1</b>	<b>\$ 103,117</b>	<b>\$ (77,661)</b>	<b>\$ 25,457</b>
Issuance of common stock, net of fees	40	—	1,734	—	1,734
Stock-based compensation	—	—	851	—	851
Net loss	—	—	—	(13,868)	(13,868)
<b>Balance at December 31, 2022</b>	<b>398</b>	<b>\$ 1</b>	<b>\$ 105,702</b>	<b>\$ (91,529)</b>	<b>\$ 14,174</b>
<b>Balance at December 31, 2022</b>	<b>398</b>	<b>\$ 1</b>	<b>\$ 105,702</b>	<b>\$ (91,529)</b>	<b>\$ 14,174</b>
Issuance of common stock, net of fees	175	—	491	—	491
Exercise of warrants, net of fees	45	—	1,120	—	1,120
Stock-based compensation	—	—	734	—	734
Net loss	—	—	—	(16,078)	(16,078)
<b>Balance at December 31, 2023</b>	<b>618</b>	<b>\$ 1</b>	<b>\$ 108,047</b>	<b>\$ (107,607)</b>	<b>\$ 441</b>

SEE ACCOMPANYING NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

**BIO-PATH HOLDINGS, INC.**  
**CONSOLIDATED STATEMENTS OF CASH FLOWS**  
**(In thousands)**

	<b>Year Ended December 31.</b>	
	<b>2023</b>	<b>2022</b>
<b>Cash flow from operating activities</b>		
Net loss	\$ (16,078)	\$ (13,868)
Adjustments to reconcile net loss to net cash used in operating activities		
Stock-based compensation	734	851
Amortization of right of use assets	96	90
Depreciation	82	88
Change in fair value of warrant liability	271	—
(Increase) decrease in operating assets		
Prepaid drug product	2,955	(3,064)
Other current assets	286	199
Increase (decrease) in operating liabilities		
Accounts payable and accrued expenses	227	700
Lease liabilities	(108)	(99)
Net cash used in operating activities	<u>(11,535)</u>	<u>(15,103)</u>
<b>Cash flow from investing activities</b>		
Purchases of furniture, fixtures & equipment	—	(21)
Net cash used in investing activities	<u>—</u>	<u>(21)</u>
<b>Cash flow from financing activities</b>		
Net proceeds from sale of common stock	1,677	1,734
Net proceeds from exercise of warrants	526	—
Net cash provided by financing activities	<u>2,203</u>	<u>1,734</u>
<b>Net decrease in cash</b>	<b>(9,332)</b>	<b>(13,390)</b>
Cash, beginning of period	<u>10,384</u>	<u>23,774</u>
Cash, end of period	<u>\$ 1,052</u>	<u>\$ 10,384</u>
<b>Supplemental disclosure of non-cash activities</b>		
Non-cash operating activities		
Right of use asset recognized in exchange for lease obligation	\$ —	\$ 85

SEE ACCOMPANYING NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

**BIO-PATH HOLDINGS, INC.**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**

**December 31, 2023**

Unless the context requires otherwise, references in these Notes to the Consolidated Financial Statements to “we,” “our,” “us,” “the Company” and “Bio-Path” refer to Bio-Path Holdings, Inc. and its subsidiary. Bio-Path Holdings, Inc.’s wholly-owned subsidiary, Bio-Path, Inc., is sometimes referred to herein as “Bio-Path Subsidiary.”

**1. Organization and Business**

The Company is a clinical and preclinical stage oncology focused RNAi nanoparticle drug development company utilizing a novel technology that achieves systemic delivery for target specific protein inhibition for any gene product that is over-expressed in disease. The Company’s drug delivery and antisense technology, called DNAbilize<sup>®</sup>, is a platform that uses P-ethoxy, which is a deoxyribonucleic acid (DNA) backbone modification that is intended to protect the DNA from destruction by the body’s enzymes when circulating *in vivo*, incorporated inside of a lipid bilayer having neutral charge. The Company believes this combination allows for high efficiency loading of antisense DNA into non-toxic, cell-membrane-like structures for delivery of the antisense drug substance into cells. *In vivo*, the DNAbilize<sup>®</sup> delivered antisense drug substances are systemically distributed throughout the body to allow for reduction or elimination of target proteins in blood diseases and solid tumors. Through testing in numerous animal studies and dosing in clinical trials, the Company’s DNAbilize<sup>®</sup> drug candidates have demonstrated an excellent safety profile. DNAbilize<sup>®</sup> is a registered trademark of the Company. Using DNAbilize<sup>®</sup> as a platform for drug development and manufacturing, the Company currently has four antisense drug candidates in development to treat at least five different cancer disease indications.

The Company was incorporated in May 2000 as a Utah corporation. In February 2008, Bio-Path Subsidiary completed a reverse merger with the Company, which at the time was traded over the counter and had no current operations. The prior name of the Company was changed to Bio-Path Holdings, Inc. and the directors and officers of Bio-Path Subsidiary became the directors and officers of Bio-Path Holdings, Inc. Effective December 31, 2014, the Company changed its state of incorporation from Utah to Delaware through a statutory conversion pursuant to the Utah Revised Business Corporation Act and the Delaware General Corporation Law.

On February 22, 2024, the Company effected a reverse stock split of its outstanding shares of common stock at a ratio of 1-for-20, and its common stock began trading on the split-adjusted basis on the Nasdaq Capital Market at the commencement of trading on February 23, 2024. All common stock share and per share amounts in this Annual Report on Form 10-K have been adjusted to give effect to the 1-for-20 reverse stock split.

The Company’s operations to date have been limited to organizing and staffing the Company, acquiring, developing and securing its technology and undertaking product development for a limited number of product candidates. As the Company has not begun its planned principal operations of commercializing a product candidate, the Company’s activities are subject to significant risks and uncertainties, including the potential requirement to secure additional funding, the outcome of the Company’s clinical trials and failing to operationalize the Company’s current drug candidates before another company develops similar products.

**2. Summary of Significant Accounting Policies**

**Principles of Consolidation** — The consolidated financial statements include the accounts of Bio-Path Holdings, Inc. and its wholly owned subsidiary Bio-Path, Inc. All intercompany accounts and transactions have been eliminated in consolidation.

**Cash and Cash Equivalents** — The Company considers all highly liquid investments with a maturity of three months or less when purchased to be cash equivalents.

**Concentration of Credit Risk** — Financial instruments that potentially subject the Company to a significant concentration of credit risk consist of cash. The Company maintains its cash balances with one major commercial bank, JPMorgan Chase Bank. The balances are insured by the Federal Deposit Insurance Corporation (the “FDIC”) up to \$250,000. As a result, as of December 31, 2023, approximately \$0.8 million of its cash balance was not covered by the FDIC. As of December 31, 2022, the Company had

approximately \$10.4 million in cash on-hand, of which approximately \$10.1 million was not covered by the FDIC. To date, the Company has not incurred any losses on its cash balances.

**Furniture, fixtures and equipment** — Furniture, fixtures and equipment are stated at cost and depreciated using the straight-line method over the estimated useful lives of the assets. Depreciation expense was \$0.1 million for each of the years ended December 31, 2023 and 2022, respectively.

The estimated useful lives are as follows:

Computers and equipment – 3 years  
Furniture and fixtures – 7 years  
Scientific equipment – 7 years  
Leasehold improvements – Lesser of useful life or lease term

Major additions and improvements are capitalized, while costs for minor replacements, maintenance and repairs that do not increase the useful life of an asset are expensed as incurred.

**Long-Lived Assets** — The Company's long-lived assets consist of furniture, fixtures and equipment, leasehold improvements and right-of-use operating assets. Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of the asset is measured by a comparison of the asset's carrying amount to the estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated undiscounted future cash flows, an impairment charge is recognized in the amount by which the carrying amount of the asset exceeds the fair value of the asset.

**Research and Development Costs** — Costs and expenses that can be clearly identified as research and development are charged to expense. Advance payments, including nonrefundable amounts, for goods or services that will be used or rendered for future research and development activities are deferred and capitalized. Such amounts will be recognized as an expense as the related goods are delivered or the related services are performed. If the goods will not be delivered, or services will not be rendered, then the capitalized advance payment is charged to expense.

The Company estimates its clinical trial expense each period based on a cost per patient calculation which is derived from estimated start-up costs, clinical trial costs based on the number of patients and length of treatment and clinical study report costs. These services are performed by the Company's third-party clinical research organizations, laboratories and clinical investigative sites. The expense is recorded in research and development expense each period. Amounts that have been prepaid in advance of work performed are recorded in other current assets.

**Stock-Based Compensation** — The Company records stock-based compensation expense measured using the fair value method. The Company uses the Black-Scholes option valuation model to calculate stock-based compensation at the date of grant. Option pricing models require the input of highly subjective assumptions, including the expected price volatility. The Company's policy is to estimate forfeitures at the grant date and revise, if necessary, in subsequent periods if actual forfeitures differ from those estimates. Changes in these assumptions can materially affect the fair value estimate.

**Warrants** — The Company determines whether warrants should be classified as a liability or equity. For warrants classified as liabilities, the Company estimates the fair value of the warrants at each reporting period using Level 3 inputs with changes in fair value recorded in the Consolidated Statement of Operations as change in fair value of warrant liability. The estimates in valuation models are based, in part, on subjective assumptions, including but not limited to stock price volatility, the expected life of the warrants, the risk-free interest rate and the fair value of the common stock underlying the warrants, and could differ materially in the future. The Company will continue to adjust the fair value of the warrant liability at the end of each reporting period for changes in fair value from the prior period until the earlier of the exercise or expiration of the applicable warrant.

**Net Loss Per Share** — Basic net loss per common share is computed by dividing net loss attributable to common stockholders for the period by the weighted average number of common shares outstanding during the period. Although there were warrants and stock options outstanding during 2023 and 2022, they were not included in the computation of any diluted per-share amount when a loss exists, as it would be anti-dilutive. Consequently, diluted net loss per share as presented in the financial statements is equal to basic net loss per share for the years 2023 and 2022. The calculation of diluted earnings per share for 2023 did not include 43,383 shares and 190,063 shares issuable pursuant to the exercise of outstanding common stock options and warrants, respectively, as of December 31, 2023, as the effect would be anti-dilutive. The calculation of diluted earnings per share for 2022 did not include 32,871 shares and 60,027 shares issuable pursuant to the exercise of outstanding common stock options and warrants, respectively, as of December 31, 2022, as the effect would be anti-dilutive.

**Use of Estimates** — The preparation of consolidated financial statements in conformity with generally accepted accounting principles in the United States (“U.S.”) requires management to make estimates and assumptions that affect the amounts reported in the Company’s consolidated financial statements and accompanying notes. On an ongoing basis, the Company evaluates its estimates and judgments, which are based on historical and anticipated results and trends as well as on various other assumptions that the Company believes to be reasonable under the circumstances. By their nature, estimates are subject to an inherent degree of uncertainty and, as such, actual results may differ from the Company’s estimates. These estimates include prepaid and accrued clinical trial costs, stock-based compensation expense, valuation of warrants and valuation of deferred tax assets.

**Income Taxes** — Deferred income tax assets and liabilities are determined based upon differences between the financial reporting and tax bases of assets and liabilities and are measured using the enacted tax rates and laws that will be in effect when the differences are expected to reverse.

**Liquidity** — Since its inception, the Company has devoted substantially all of its efforts to product development, raising capital and building infrastructure, and has not generated significant revenues from its planned principal operations. The Company does not anticipate generating significant revenues for the foreseeable future. The Company’s activities are subject to significant risks and uncertainties.

The Company has experienced significant losses since its inception, including net losses of \$16.1 million and \$13.9 million for the years ended December 31, 2023 and 2022, respectively. As of December 31, 2023, the Company had an accumulated deficit of \$107.6 million and \$1.1 million in cash and cash equivalents. The Company has no debt commitments. Substantially all of the Company’s net losses have resulted from costs incurred in connection with its research and development activities and its general and administrative expenses to support operations. The Company’s net losses may fluctuate significantly from quarter to quarter and year to year.

The Company’s available cash at December 31, 2023 will not be sufficient to fund current liabilities and capital expenditure requirements. Therefore, substantial doubt exists about the Company’s ability to continue as a going concern. The Company expects to continue to incur significant operating expenses for the foreseeable future in connection with its ongoing activities, including conducting clinical trials, manufacturing development and seeking regulatory approval of its drug candidates, prexigebersen, BP1002, BP1003 and BP1001-A. Accordingly, the Company will continue to require substantial additional capital to fund its projected operating requirements. Such additional capital may not be available when needed or on terms favorable to the Company. In addition, the Company may seek additional capital due to favorable market conditions or strategic considerations, even if it believes it has sufficient funds for its current and future operating plan. There can be no assurance that the Company will be able to continue to raise additional capital through the sale of securities in the future. If the Company is not able to secure adequate additional funding, the Company may be forced to make reductions in spending, extend payment terms with suppliers and/or suspend or curtail planned programs. Any of these actions could materially harm the Company’s business, results of operations, financial condition and future prospects.

**Recent Accounting Pronouncements** — From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board (FASB) that are adopted by the Company as of the specified effective date. There are no recent accounting pronouncements that have a material impact on the Company’s consolidated financial statements.

### 3. Prepaid Drug Product

Advance payments, including nonrefundable amounts, for goods or services that will be used or rendered for future clinical development activities are deferred and capitalized. Such amounts will be recognized as an expense as the related goods are delivered or the related services are performed. The Company recognized certain expenses and incurred installment costs for its contract drug manufacturing and raw material suppliers with prepayments totaling \$3.6 million as of December 31, 2022 pursuant to drug supply contracts for the manufacture and delivery of prexigebersen for testing in a Phase 2 clinical trial, BP1001-A for testing in a Phase 1 clinical trial and BP1002 for testing in a Phase 1 clinical trial. The Company recognized certain expenses and incurred additional installment costs during 2023, with advanced payments remaining to be expensed totaling \$0.6 million as of December 31, 2023.

### 4. Other Current Assets

As of December 31, 2023, other current assets included prepaid expenses of \$1.4 million, comprised primarily of prepayments of \$0.9 million made for the Company's clinical trials for BP1002 in AML and lymphoma and BP1001-A in solid tumors as well as prepaid insurance of \$0.3 million, prepaid Delaware franchise tax of \$0.1 million and other prepaid expenses of \$0.1 million. As of December 31, 2022, other current assets included prepaid expenses of \$1.6 million, comprised primarily of prepayments of \$1.3 million made for the Company's clinical trials for BP1002 in AML and lymphoma, BP1001-A in solid tumors and prexigebersen in AML as well as prepaid insurance of \$0.3 million.

### 5. Property and Equipment

The following table summarizes property and equipment as of December 31, 2023 and 2022:

	Estimated Useful Lives (in years)	December 31,	
		2023 (in thousands)	2022 (in thousands)
Leasehold improvements	2 to 5	\$ 463	\$ 463
Computers and office equipment	3	83	83
Furniture and fixtures	7	93	93
Scientific equipment	7	481	481
Total		1,120	1,120
Less: Accumulated depreciation		(1,044)	(962)
Net property and equipment		\$ 76	\$ 158

### 6. Accounts Payable

As of December 31, 2023, current liabilities included accounts payable of \$0.5 million, comprised primarily of expenses related to our clinical trials of \$0.3 million, legal and patent fees of \$0.1 million and other accounts payables of \$0.1 million. As of December 31, 2022, current liabilities included accounts payable of \$0.7 million, comprised primarily of expenses related to drug manufacturing, development and testing services of \$0.6 million and legal and patent fees of \$0.1 million.

### 7. Accrued Expense

As of December 31, 2023, current liabilities included accrued expenses of \$1.3 million, comprised primarily of expenses related to the Company's clinical trial for prexigebersen in AML of \$0.8 million, accrued employee vacation and bonus expenses of \$0.2 million, professional and consulting fees of \$0.1 million, legal and patent fees of \$0.1 million and other accrued expenses of \$0.1 million. As of December 31, 2022, current liabilities included accrued expenses of \$0.9 million, comprised primarily of accrued employee vacation and bonus expenses of \$0.4 million, drug manufacturing, development and testing services of \$0.2 million, professional and consulting fees of \$0.1 million, legal and patent fees of \$0.1 million and other accrued expenses of \$0.1 million.

## 8. Warrant Liability

In connection with the 2023 Public Offering (as defined in Note 10), the Company issued the 2023 Warrants (as defined in Note 10). The 2023 Warrants contain a provision applicable in the event of a fundamental transaction whereby the volatility used to calculate the warrant exercise terms is fixed and meets the definition of a derivative.

Due to this provision and in accordance with ASC 815 Derivatives and Hedging, the 2023 Warrants were classified as a liability and recorded at fair value using the Black-Scholes valuation model. The estimated fair value of the warrant liability for the 2023 Warrants on the closing date of the 2023 Public Offering, August 7, 2023, was \$1.2 million. As of December 31, 2023, the fair value of the warrant liability was \$0.9 million. The net change in fair value during the year of \$0.3 million, comprised of a decrease in fair value of \$0.6 million related to warrant exercises partially offset by an increase in fair value of the warrant liability for the 2023 Warrants of \$0.3 million, is shown as other loss on the Company's Consolidated Statements of Operations. The Company will continue to measure the fair value of the 2023 Warrants each quarter until they are exercised or expire, and any change will be adjusted accordingly on the Company's financial statements.

## 9. Fair Value Measurements

In accordance with ASC 820, the Company uses various inputs to measure the 2023 Warrants on a recurring basis to determine the fair value of the liability. ASC 820 also establishes a hierarchy categorizing inputs into three levels used to measure and disclose fair value. The hierarchy gives the highest priority to quoted prices available in active markets and the lowest priority to unobservable inputs. An explanation of each level in the hierarchy is described below:

Level 1 – Unadjusted quoted prices in active markets for identical instruments that are accessible by the Company on the measurement date

Level 2 – Quoted prices in markets that are not active or inputs which are either directly or indirectly observable

Level 3 – Unobservable inputs for the instrument requiring the development of assumptions by the Company

The following table summarizes the Company's 2023 Warrants measured at fair value within the hierarchy on a recurring basis as of December 31, 2023:

	Fair Value Measurements at December 31, 2023 (in thousands)			
	Level 1	Level 2	Level 3	Total
<b>Liabilities:</b>				
Warrant liability	\$ —	\$ —	\$ 863	\$ 863

The Company did not have the 2023 Warrants at December 31, 2022.

The following table summarizes changes to the fair value of the Level 3 2023 Warrants for the year ended December 31, 2023:

	Fair Value of Warrant Liability (in thousands)
Balance at December 31, 2022	\$ —
Issuance	1,186
Exercises	(594)
Change in fair value	271
Balance at December 31, 2023	\$ 863



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The Company utilized the Black-Scholes valuation model for estimating the fair value of the 2023 Warrants using the following assumptions as of December 31, 2023:

	As of December 31, 2023
Risk-free interest rate	3.84 %
Expected volatility	102 %
Expected term in years	4.6
Dividend yield	— %

### 10. Stockholders' Equity

**Issuances of Common Stock** – On November 6, 2022, the Company entered into a placement agency agreement with Roth Capital Partners, LLC relating to the 2022 Registered Direct Offering and the 2022 Private Placement. In addition, on November 6, 2022, the Company entered into securities purchase agreements with several institutional and accredited investors pursuant to which the Company agreed to sell, in a registered direct offering, an aggregate of 40,000 shares of our common stock for gross proceeds of approximately \$2.0 million under the base prospectus contained in the Company's shelf registration statement on Form S-3 filed with the SEC, which was declared effective by the SEC on June 14, 2022 (File No. 333-265282) (the "2022 Shelf Registration Statement"), and a related prospectus supplement filed with the SEC on November 9, 2022 (the "2022 Registered Direct Offering"). In a concurrent private placement, the Company also agreed pursuant to the securities purchase agreements to issue to such investors warrants to purchase up to 40,000 shares of its common stock (the "2022 Private Placement"). The 2022 Registered Direct Offering and the 2022 Private Placement closed on November 9, 2022. The net proceeds from the offerings, after deducting the placement agent's fees and expenses and the Company's offering expenses, and excluding the proceeds, if any, from the exercise of the warrants issued in the offerings, were approximately \$1.7 million.

On August 3, 2023, the Company entered into a placement agency agreement with Roth Capital Partners, LLC relating to a best efforts public offering of an aggregate of 175,000 shares of our common stock, together with warrants to purchase up to 175,000 shares of the Company's common stock ("the 2023 Warrants"), for gross proceeds of approximately \$2.1 million (the "2023 Public Offering"). The 2023 Public Offering was made pursuant to a registration statement on Form S-1, as amended (File No. 333-272879), which was declared effective by the SEC on August 2, 2023. The 2023 Public Offering closed on August 7, 2023. The net proceeds from the offering, after deducting the placement agent's fees and expenses and the Company's offering expenses, and excluding the proceeds, if any, from the exercise of the warrants issued in the offering, were approximately \$1.7 million.

During the year ended December 31, 2023, the Company issued an aggregate of 44,625 shares of its common stock pursuant to the exercise of warrants at a weighted average exercise price of approximately \$12.00 per share. The net proceeds to the Company from the exercise of the warrants were approximately \$0.5 million. The Company did not issue any common stock pursuant to the exercise of warrants during the year ended December 31, 2022.

Stockholders' Equity totaled \$0.4 million as of December 31, 2023 compared to \$14.2 million as of December 31, 2022. There were 617,633 shares of common stock issued and outstanding as of December 31, 2023. There were no shares of preferred stock issued and outstanding as of December 31, 2023.

### 11. Stock-Based Compensation Plan

**The 2022 Plan** – On December 15, 2022, the Company's stockholders approved the Bio-Path Holdings, Inc. 2022 Stock Incentive Plan (the "2022 Plan"), which replaced the 2017 Stock Incentive Plan, as amended (the "2017 Plan," and together with the 2022 Plan, the "Plans"). As of stockholder approval of the 2022 Plan on December 15, 2022, no further awards will be made under the 2017 Plan. The 2022 Plan provides for the grant of Incentive Stock Options, Non-Qualified Stock Options, Restricted Shares, Restricted Share Units, Stock Appreciation Rights and other stock-based awards, or any combination of the foregoing, to the Company's employees, non-employee directors and consultants. As of December 31, 2023, there were 65,000 shares of common stock reserved for future issuance of awards under the 2022 Plan. Under the 2022 Plan, the exercise price of awards is determined by the Board of Directors or the compensation committee of the Board of Directors, and for options, may not be less than the fair market value as determined by the closing stock price at the date of the grant. Each option and award under the 2022 Plan shall vest and

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expire as determined by the Board of Directors or the compensation committee. Options expire no later than ten years from the date of grant. All grants provide for accelerated vesting if there is a change in control, as defined in the 2022 Plan.

Stock option awards granted for the years 2023 and 2022 were estimated to have a weighted average fair value per share of \$27.80 and \$74.20, respectively. The fair value calculation is based on stock options granted during the year using the Black-Scholes option-pricing model on the date of grant. In addition, for all stock options granted, exercise price was determined based on the fair value as determined by the closing stock price at the date of the grant. For stock options granted during 2023 and 2022 the following weighted average assumptions were used in determining fair value:

	<u>2023</u>	<u>2022</u>
Risk-free interest rate	3.42 %	2.43 %
Expected volatility	129 %	127 %
Expected term in years	6.0	6.0
Dividend yield	— %	— %

The Company determines the expected term of its stock option awards using the simplified method based on the weighted average of the length of the vesting period and the term of the exercise period. Expected volatility is determined by the volatility of the Company's historical stock price over the expected term of the grant. The risk-free interest rate for the expected term of each option granted is based on the U.S. Treasury yield curve in effect at the time of grant.

Option activity under the Plans for the year ended December 31, 2023 was as follows:

	<u>Options</u> <u>(in thousands)</u>	<u>Weighted-Average</u> <u>Exercise</u> <u>Price</u>	<u>Weighted</u> <u>Average</u> <u>Remaining</u> <u>Contractual</u> <u>Term</u>	<u>Aggregate</u> <u>Intrinsic</u> <u>Value</u>
Outstanding at December 31, 2022	33	\$ 233.40	7.9	\$ —
Granted	11	\$ 27.80	9.3	
Expired	<u>(1)</u>	<u>\$ 1,840.00</u>		
Outstanding at December 31, 2023	43	\$ 161.20	7.6	\$ —
Vested and expected to vest December 31, 2023	43	\$ 162.80	7.6	\$ —
Exercisable at December 31, 2023	25	\$ 236.20	6.9	\$ —

The aggregate intrinsic value represents the total pretax intrinsic value (the difference between the Company's closing stock price on December 31, 2023 and the exercise price, multiplied by the number of in-the-money options) that would have been received by the option holders had all option holders exercised their options on December 31, 2023. This amount changes based on the fair value of the Company's stock.

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Option activity under the Plans for the year ended December 31, 2022 was as follows (in thousands, except as noted):

	Options (in thousands)	Weighted- Average Exercise Price	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
Outstanding at December 31, 2021	24	\$ 291.60	8.4	\$ 7,800
Granted	10	74.20	9.3	
Expired	(1)	119.20		
Outstanding at December 31, 2022	33	\$ 233.40	7.9	\$ —
Vested and expected to vest December 31, 2022	32	\$ 238.00	7.9	\$ —
Exercisable at December 31, 2022	16	\$ 372.40	7.3	\$ —

The aggregate intrinsic value represents the total pretax intrinsic value (the difference between the Company's closing stock price on December 31, 2022 and the exercise price, multiplied by the number of in-the-money options) that would have been received by the option holders had all option holders exercised their options on December 31, 2022. This amount changes based on the fair value of the Company's stock.

**Stock-Based Compensation Expense** – Total stock-based compensation expense for the year ended 2023 was \$0.7 million, which consisted of research and development expense of \$0.2 million and general and administrative expense of \$0.6 million. As of December 31, 2023, future stock-based compensation expense for all outstanding unvested options was \$0.9 million, which is expected to be recognized over a weighted-average vesting period of 1.8 years. Total stock-based compensation expense for the year ended 2022 was \$0.9 million, which consisted of research and development expense of \$0.2 million and general and administrative expense of \$0.7 million.

## 12. Warrants

A summary of warrants outstanding and exercisable as of December 31, 2023 is as follows (in thousands, except as noted):

Year Issued	Warrants Outstanding			Warrants Exercisable	
	Number Outstanding	Weighted Average Remaining Contractual Life (in years)	Weighted Average Exercise Price (per share)	Number Exercisable	Weighted Average Exercise Price (per share)
2018	6	0.2	384.00	6	384.00
2019	14	0.8	275.20	14	275.20
2022	40	4.4	15.20	40	15.20
2023	130	4.6	12.00	130	12.00
	190	4.1	\$ 43.20	190	\$ 43.20

## 13. Commitments and Contingencies

**Drug Supplier Project Plan** – Total commitments for the Company's drug supplier project plan were \$1.0 million as of December 31, 2023, comprised of \$0.8 million for the manufacture of the Company's Grb2 drug substance and \$0.2 million for testing services. The Company expects to incur \$0.9 million of these commitments over the next 12 months.

## 14. Leases

In April 2014, the Company entered into a five-year lease agreement for administrative office space located in Bellaire, Texas. The term of the lease began on August 1, 2014 and was set to expire on July 31, 2019; however, in May 2019, the Company entered

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into an amendment to the lease agreement to extend the term of the lease for a period of five years, beginning on August 1, 2019 and ending on October 31, 2024.

In April 2016, the Company entered into a three-year lease agreement for lab space located in Bellaire, Texas. The term of lease began on May 1, 2016 and was set to expire on April 30, 2019; however, in December 2018, the Company entered into an amendment to the lease agreement to extend the term for a period of three years, beginning on May 1, 2019 and ending on April 30, 2022. In January 2022, the Company exercised an option in the lease agreement amendment to extend the term of the lease to April 30, 2025.

At the inception of an agreement, the Company determines if the agreement is a lease based on the unique facts and circumstances in each agreement. Lease classification, recognition, and measurement are then determined at the lease commencement date. For agreements that contain a lease, the Company identifies lease and non-lease components, determines the consideration in the contract, determines whether the lease is an operating or financing lease and recognizes right of use (“ROU”) assets and lease liabilities. Lease liabilities and their corresponding ROU assets are recorded based on the present value of lease payments over the expected lease term. The interest rate implicit in lease contracts is typically not readily determinable so the Company uses an incremental borrowing rate based on the information available at the lease commencement date, which represents an estimated rate that would be incurred to borrow over a similar term in a similar economic environment. The weighted average incremental borrowing rate utilized on its lease liabilities as of December 31, 2023 was 8.0%.

The Company’s current leases include options to renew which can impact the lease term. The exercise of these options is at its discretion and the Company does not include any of these options within the expected lease term as there is no reasonable certainty these options will be exercised. Fixed lease payments on operating leases are recognized over the expected term of the lease on a straight-line basis within its consolidated financial statements. The Company’s leases are included in ROU assets, current portion of lease liabilities and noncurrent lease liabilities in its consolidated balance sheet for the year ended December 31, 2023.

The following table summarizes the Company’s operating lease assets and liabilities:

	December 31,	
	2023	2022
	(in thousands)	
Assets:		
Operating lease assets	\$ 102	\$ 198
Liabilities:		
Current portion of lease liabilities	103	108
Noncurrent lease liabilities	10	113
Total operating lease liabilities	\$ 113	\$ 221

The following table summarizes the Company's lease related costs:

	December 31,	
	2023	2022
	(in thousands)	
Operating lease costs	\$ 113	\$ 115
Variable lease costs	10	5
Total lease costs	\$ 123	\$ 120

The Company made cash payments for its operating leases of \$0.1 million for the year ended December 31, 2023.

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The following table summarizes the Company's expected minimum lease payments:

	<u>As of December 31, 2023</u> <u>(in thousands)</u>
2024	\$ 108
2025	11
Future minimum lease payments	119
Less: Interest	(6)
Present value of operating lease liabilities	\$ 113

As of December 31, 2023, the weighted average remaining lease term was 1.0 years.

## 15. Benefit Plan

The Company initiated a contribution savings plan under Section 401(k) of the Internal Revenue Code in 2016. Under the plan, all eligible employees may contribute up to the statutory allowable amount governed by the Internal Revenue Service for any calendar year. The Company makes matching contributions equal to 100% of the first 3% and 50% of the next 2% of each employee's base salary up to the allowable amount, which is fully vested on the date the matching contributions are made. For the years ended December 31, 2023 and 2022, matching contributions totaled \$52,000 and \$37,000, respectively.

## 16. Income Taxes

At December 31, 2023, the Company had a net operating loss carryforward for federal income tax purposes of \$97.3 million, \$35.8 million of which begins to expire in varying amounts in tax years 2026 through 2037. Approximately \$61.5 million of net operating losses, incurred after December 31, 2017, carryforward indefinitely. Additionally, the Company has a research and development tax credit carryforward of \$6.5 million for federal income tax purposes that begins to expire in varying amounts in tax year 2028. In connection with the Company's equity transactions in 2007 and 2019, the Company determined that the utilization of net operating losses in future years may be subject to limitations by reason of an "ownership change" as defined under Section 382 of the Internal Revenue Code (IRC) ("Section 382 Limitation"). As a result of the Section 382 Limitation, the Company may not be able to fully utilize its net operating loss carry forwards and other tax credit carry forwards to offset future taxable income. Based on the Company's estimated impact of the ownership change and Section 382 Limitation as of December 31, 2023, the net operating loss was reduced to \$88.3 million, and the tax credits were reduced to \$4.8 million for credits earned after the 2019 ownership change. During the year ended December 31, 2023, the Company raised additional equity capital and has yet to determine whether an ownership change occurred. If an ownership change is determined to have occurred in 2023, additional limitations on the Company's net operating losses incurred prior to the ownership change may apply. Based on operations through December 31, 2023, the Company has estimated that the net operating loss and tax credits should be further reduced by providing a full valuation allowance against both.

In assessing the ability to realize its deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers evidence such as the reversal of deferred tax liabilities, projected future results of operations, and tax planning strategies in making this assessment. Based upon the level of historical taxable income, significant book losses during the current and prior periods, and projections for future results of operations over the periods in which the deferred tax assets are deductible, among other factors, management continues to conclude that the Company does not meet the "more likely than not" requirement of ASC 740 in order to recognize deferred tax assets. As such, a valuation allowance has been recorded to offset the Company's net deferred tax assets at December 31, 2023. The Company recorded an increase in the valuation allowance of \$5.0 million for the year ended December 31, 2023.

Due to the uncertainty surrounding the realization of the benefits of its deferred assets, including NOL carryforwards, the Company has provided a 100% valuation allowance on its net deferred tax assets at December 31, 2023 and 2022. The valuation allowance was \$24.2 million and \$19.1 million as of December 31, 2023 and 2022, respectively.

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The components of the Company's deferred tax asset are as follows:

	December 31,	
	2023	2022
	(in thousands)	
Deferred tax assets – non-current		
Accrued bonuses	\$ 22	\$ 63
Accrued vacation	24	28
Net operating loss (NOL) carryover	18,550	15,818
Research & development tax credits	4,769	2,509
Share based expense	750	671
Other	3	3
Right of use lease liability	24	46
Fixed asset depreciation	50	44
Total deferred tax asset	24,192	19,182
Less: valuation allowance	(24,171)	(19,140)
Net deferred tax asset	21	42
Right of use asset	(21)	(42)
Net deferred tax asset	\$ —	\$ —

Reconciliation between income taxes at the statutory tax rate (21%) and the actual income tax provision for continuing operations follows:

	December 31,	
	2023	2022
	(in thousands)	
Loss before income taxes	\$ (16,078)	\$ (13,868)
Tax (benefit) at statutory tax rate	(3,376)	(2,912)
Effects of:		
Exclusion of incentive stock option expense	74	80
R&D tax credits	(2,261)	844
Increase in valuation allowance	5,031	98
FMV of warrants	57	—
Section 382 limit - NOL	—	1,890
Other	475	—
Provision for income taxes	\$ —	\$ —

As of December 31, 2023, the Company had no unrecognized income tax benefits. The Company's policy for classifying interest and penalties associated with unrecognized income tax benefits is to include such items as tax expense. No interest or penalties have been recorded as of the year ended December 31, 2023, and no interest or penalties have been accrued as of December 31, 2023 and 2022, respectively.

The Company's open years for Internal Revenue Service (IRS) examination purposes due to normal statute of limitation are 2020, 2021 and 2022. However, since the Company has operating loss carryforwards, the IRS has the ability to make adjustments to items that originate in a year otherwise barred by the statute of limitations under Section 6501 of the IRC of 1986, as amended, in order to redetermine tax for an open year to which those items are carried. Therefore, in a year in which a net operating loss deduction was claimed, the IRS may examine the year in which the net operating loss was generated and adjust it accordingly for purposes of assessing additional tax in the year the net operating loss was claimed. The Company is not currently under examination by the IRS or any other taxing authorities.

## 17. Subsequent Events

On February 22, 2024, the Company effected a reverse stock split of its outstanding shares of common stock at a ratio of 1-for-20, and its common stock began trading on the split-adjusted basis on the Nasdaq Capital Market at the commencement of trading on February 23, 2024 (See Note 1).

**PART I – FINANCIAL INFORMATION**  
**ITEM 1. FINANCIAL STATEMENTS**

**BIO-PATH HOLDINGS, INC.**

**CONDENSED CONSOLIDATED BALANCE SHEETS**  
**(In thousands, except par value)**

	As of September 30, 2024 (unaudited)	As of December 31, 2023
<b>Assets</b>		
Current assets		
Cash	\$ 562	\$ 1,052
Prepaid drug product	531	632
Other current assets	1,806	1,358
<b>Total current assets</b>	<u>2,899</u>	<u>3,042</u>
Fixed assets		
Furniture, fixtures & equipment	1,120	1,120
Less accumulated depreciation	<u>(1,078)</u>	<u>(1,044)</u>
	42	76
Right of use operating assets	24	102
<b>Total Assets</b>	<u>\$ 2,965</u>	<u>\$ 3,220</u>
<b>Liabilities &amp; Shareholders' (Deficit) Equity</b>		
Current liabilities		
Accounts payable	\$ 1,036	\$ 457
Accrued expenses	2,313	1,346
Current portion of lease liabilities	26	103
<b>Total current liabilities</b>	<u>3,375</u>	<u>1,906</u>
Warrant liability	302	863
Noncurrent lease liabilities	<u>—</u>	<u>10</u>
<b>Total Liabilities</b>	3,677	2,779
Shareholders' (deficit) equity		
Preferred stock, \$.001 par value; 10,000 shares authorized; no shares issued and outstanding	—	—
Common stock, \$.001 par value; 200,000 shares authorized; 3,710 and 618 shares issued and outstanding, respectively	4	1
Additional paid in capital	114,032	108,047
Accumulated deficit	<u>(114,748)</u>	<u>(107,607)</u>
<b>Total shareholders' (deficit) equity</b>	<u>(712)</u>	<u>441</u>
<b>Total Liabilities &amp; Shareholders' (Deficit) Equity</b>	<u>\$ 2,965</u>	<u>\$ 3,220</u>

SEE ACCOMPANYING NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

**BIO-PATH HOLDINGS, INC.****CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS****(In thousands, except per share amounts)****(Unaudited)**

	<u>Three Months Ended September 30,</u>		<u>Nine Months Ended September 30,</u>	
	<u>2024</u>	<u>2023</u>	<u>2024</u>	<u>2023</u>
<b>Operating expenses</b>				
Research and development	\$ 1,317	\$ 2,292	\$ 5,478	\$ 9,332
General and administrative	1,317	984	3,889	3,478
Total operating expenses	2,634	3,276	9,367	12,810
<b>Net operating loss</b>	\$ (2,634)	\$ (3,276)	\$ (9,367)	\$ (12,810)
<b>Other income</b>				
Change in fair value of warrant liability	515	72	2,216	72
Interest income	4	5	10	32
<b>Total other income</b>	519	77	2,226	104
<b>Net loss</b>	\$ (2,115)	\$ (3,199)	\$ (7,141)	\$ (12,706)
<b>Net loss per share, basic and diluted</b>	\$ (0.70)	\$ (6.36)	\$ (4.05)	\$ (29.34)
<b>Basic and diluted weighted average number of common shares outstanding</b>	3,017	503	1,763	433

SEE ACCOMPANYING NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS



BIO-PATH HOLDINGS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF SHAREHOLDERS' (DEFICIT) EQUITY  
(in thousands)  
(Unaudited)

Description	Common Stock		Additional Paid in Capital	Accumulated Deficit	Total
	Shares	Amount			
<b>Balance at June 30, 2023</b>	<b>398</b>	<b>\$ 1</b>	<b>\$ 106,078</b>	<b>\$ (101,036)</b>	<b>\$ 5,043</b>
Issuance of common stock and warrants, net of fees and warrant liability	175	—	503	—	503
Stock-based compensation	—	—	178	—	178
Net loss	—	—	—	(3,199)	(3,199)
<b>Balance at September 30, 2023</b>	<b>573</b>	<b>\$ 1</b>	<b>\$ 106,759</b>	<b>\$ (104,235)</b>	<b>\$ 2,525</b>
<b>Balance at June 30, 2024</b>	<b>2,283</b>	<b>\$ 2</b>	<b>\$ 113,922</b>	<b>\$ (112,633)</b>	<b>\$ 1,291</b>
Issuance of common stock and warrants, net of fees and warrant liability	1,427	2	(18)	—	(16)
Stock-based compensation	—	—	128	—	128
Net loss	—	—	—	(2,115)	(2,115)
<b>Balance at September 30, 2024</b>	<b>3,710</b>	<b>\$ 4</b>	<b>\$ 114,032</b>	<b>\$ (114,748)</b>	<b>\$ (712)</b>
Description	Common Stock		Additional Paid in Capital	Accumulated Deficit	Total
	Shares	Amount			
<b>Balance at December 31, 2022</b>	<b>398</b>	<b>\$ 1</b>	<b>\$ 105,702</b>	<b>\$ (91,529)</b>	<b>\$ 14,174</b>
Issuance of common stock and warrants, net of fees and warrant liability	175	—	503	—	503
Stock-based compensation	—	—	554	—	554
Net loss	—	—	—	(12,706)	(12,706)
<b>Balance at September 30, 2023</b>	<b>573</b>	<b>\$ 1</b>	<b>\$ 106,759</b>	<b>\$ (104,235)</b>	<b>\$ 2,525</b>
<b>Balance at December 31, 2023</b>	<b>618</b>	<b>\$ 1</b>	<b>\$ 108,047</b>	<b>\$ (107,607)</b>	<b>\$ 441</b>
Issuance of common stock and warrants, net of fees and warrant liability	3,092	3	5,546	—	5,549
Stock-based compensation	—	—	439	—	439
Net loss	—	—	—	(7,141)	(7,141)
<b>Balance at September 30, 2024</b>	<b>3,710</b>	<b>\$ 4</b>	<b>\$ 114,032</b>	<b>\$ (114,748)</b>	<b>\$ (712)</b>

SEE ACCOMPANYING NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

**BIO-PATH HOLDINGS, INC.**  
**CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS**  
**(In thousands)**  
**(Unaudited)**

	<u>Nine Months Ended September 30,</u>	
	<u>2024</u>	<u>2023</u>
<b>Cash flow from operating activities</b>		
Net loss	\$ (7,141)	\$ (12,706)
Adjustments to reconcile net loss to net cash used in operating activities		
Stock-based compensation	439	554
Amortization of right of use assets	78	71
Depreciation	34	66
Change in fair value of warrant liability	(2,216)	(72)
(Increase) decrease in operating assets		
Prepaid drug product	101	2,955
Other current assets	(448)	(174)
Increase (decrease) in operating liabilities		
Accounts payable and accrued expenses	1,546	(335)
Lease liabilities	(87)	(80)
Net cash used in operating activities	<u>(7,694)</u>	<u>(9,721)</u>
<b>Cash flow from financing activities</b>		
Net proceeds from sale of common stock	<u>7,204</u>	<u>1,689</u>
Net cash provided by financing activities	<u>7,204</u>	<u>1,689</u>
<b>Net increase (decrease) in cash</b>	<b>(490)</b>	<b>(8,032)</b>
Cash, beginning of period	<u>1,052</u>	<u>10,384</u>
Cash, end of period	<u>\$ 562</u>	<u>\$ 2,352</u>

SEE ACCOMPANYING NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

## BIO-PATH HOLDINGS, INC.

### NOTES TO THE UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

Unless the context requires otherwise, references in these Notes to the Condensed Consolidated Financial Statements to “we,” “our,” “us,” “the Company” and “Bio-Path” refer to Bio-Path Holdings, Inc. and its subsidiary. Bio-Path Holdings, Inc.’s wholly-owned subsidiary, Bio-Path, Inc., is sometimes referred to herein as “Bio-Path Subsidiary.”

The accompanying unaudited condensed interim financial statements have been prepared in conformity with the authoritative U.S. generally accepted accounting principles (GAAP) for interim financial information and in accordance with the instructions to Form 10-Q pursuant to the rules and regulations of the Securities and Exchange Commission (“SEC”) and, therefore, do not include all information and footnotes required by GAAP for complete consolidated financial statements. In the opinion of management, all adjustments considered necessary for a fair presentation of the results of operations and financial position have been included and all such adjustments are of a normal recurring nature. The unaudited quarterly financial statements should be read in conjunction with the audited financial statements and notes thereto included in the Annual Report on Form 10-K of the Company as of and for the fiscal year ended December 31, 2023. The results of operations for the period ended September 30, 2024 are not necessarily indicative of the results for a full-year period.

#### 1. Organization and Business

The Company is a clinical and preclinical stage oncology-focused RNAi nanoparticle drug development company utilizing a novel technology that achieves systemic delivery for target-specific protein inhibition for any gene product that is over-expressed in disease. The Company’s drug delivery and antisense technology, called DNAbilize<sup>®</sup>, is a platform that uses P-ethoxy, which is a deoxyribonucleic acid (DNA) backbone modification that is intended to protect the DNA from destruction by the body’s enzymes when circulating *in vivo*, incorporated inside of a lipid bilayer having neutral charge. The Company believes this combination allows for high efficiency loading of antisense DNA into non-toxic, cell-membrane-like structures for delivery of the antisense drug substance into cells. *In vivo*, the DNAbilize<sup>®</sup> delivered antisense drug substances are systemically distributed throughout the body to allow for reduction or elimination of target proteins in blood diseases and solid tumors. Through testing in numerous animal studies and dosing in clinical trials, the Company’s DNAbilize<sup>®</sup> drug candidates have demonstrated an excellent safety profile. DNAbilize<sup>®</sup> is a registered trademark of the Company. Using DNAbilize<sup>®</sup> as a platform for drug development and manufacturing, the Company currently has four antisense drug candidates in development to treat at least five different cancer disease indications.

The Company was incorporated in May 2000 as a Utah corporation. In February 2008, Bio-Path Subsidiary completed a reverse merger with the Company, which at the time was traded over the counter and had no current operations. The prior name of the Company was changed to Bio-Path Holdings, Inc. and the directors and officers of Bio-Path Subsidiary became the directors and officers of Bio-Path Holdings, Inc. Effective December 31, 2014, the Company changed its state of incorporation from Utah to Delaware through a statutory conversion pursuant to the Utah Revised Business Corporation Act and the Delaware General Corporation Law.

The Company’s operations to date have been limited to organizing and staffing the Company, acquiring, developing and securing its technology and undertaking product development for a limited number of product candidates. As the Company has not begun its planned principal operations of commercializing a product candidate, the Company’s activities are subject to significant risks and uncertainties, including the potential requirement to secure additional funding, the outcome of the Company’s clinical trials and failing to operationalize the Company’s current drug candidates before another company develops similar products.

#### 2. Significant Accounting Policies

**Net Loss Per Share** – Basic net loss per common share is computed by dividing the net loss for the period by the weighted average number of shares of common stock outstanding during the period. Although there were warrants and stock options outstanding as of September 30, 2024 and 2023, no potential common shares are included in the computation of any diluted per share amount, as they would be antidilutive. Consequently, diluted net loss per share as presented in the condensed consolidated financial statements is equal to basic net loss per share for the three and nine months ended September 30, 2024 and 2023. The calculation of

diluted earnings per share for 2024 did not include 96,389 shares and 4,421,679 shares issuable pursuant to the exercise of outstanding common stock options and warrants, respectively, as of September 30, 2024 as the effect would be antidilutive. The calculation of diluted earnings per share for 2023 did not include 43,383 shares and 234,688 shares issuable pursuant to the exercise of outstanding common stock options and warrants, respectively, as of September 30, 2023 as the effect would be antidilutive.

**Liquidity** - The Company's available cash and cash equivalents of \$0.6 million at September 30, 2024 along with the net proceeds received from the October 2024 Private Placement (see Note 12) will not be sufficient to fund liquidity and capital expenditure requirements for the next 12 months from the date of issuance of these consolidated financial statements. Therefore, substantial doubt exists about the Company's ability to continue as a going concern. The Company expects to continue to incur significant operating expenses for the foreseeable future in connection with its ongoing activities, including conducting clinical trials, manufacturing development and seeking regulatory approval of its drug candidates, prexigebersen, BP1002, BP1003 and BP-1001A. Accordingly, the Company will continue to require substantial additional capital to fund its projected operating requirements. Such additional capital may not be available when needed or on terms favorable to the Company. In addition, the Company may seek additional capital due to favorable market conditions or strategic considerations, even if it believes it has sufficient funds for its current and future operating plan. There can be no assurance that the Company will be able to continue to raise additional capital through the sale of securities in the future. If the Company is not able to secure adequate additional funding, the Company may be forced to make reductions in spending, extend payment terms with suppliers and/or suspend or curtail planned programs. Any of these actions could materially harm the Company's business, results of operations, financial condition and future prospects.

**Warrants** - The Company determines whether warrants should be classified as a liability or equity. For warrants classified as liabilities, the Company estimates the fair value of the warrants at each reporting period using Level 3 inputs with changes in fair value recorded in the Condensed Consolidated Statement of Operations as change in fair value of warrant liability. The estimates in valuation models are based, in part, on subjective assumptions, including but not limited to stock price volatility, the expected life of the warrants, the risk-free interest rate and the fair value of the common stock underlying the warrants, and could differ materially in the future. The Company will continue to adjust the fair value of the warrant liability at the end of each reporting period for changes in fair value from the prior period until the earlier of the exercise or expiration of the applicable warrant.

**Fair Value** - The fair values of cash and cash equivalents, accounts payable and accrued liabilities approximate their carrying values because of the short-term maturities of these instruments.

### **3. Prepaid Drug Product**

Advance payments, including nonrefundable amounts, for goods or services that will be used or rendered for future clinical development activities are deferred and capitalized. Such amounts will be recognized as an expense as the related goods are delivered or the related services are performed. The Company recognized certain expenses and incurred installment costs for its contract drug manufacturing and raw material suppliers with prepayments totaling \$0.6 million as of December 31, 2023 pursuant to drug supply contracts for the manufacture and delivery of prexigebersen for testing in a Phase 2 clinical trial. The Company recognized certain expenses and incurred additional installment costs during the first nine months of 2024, with advanced payments remaining to be expensed totaling \$0.5 million as of September 30, 2024.

### **4. Other Current Assets**

As of September 30, 2024, other current assets included prepaid expenses of \$1.8 million, comprised primarily of prepayments of \$1.4 million made for the Company's clinical trials for BP1001-A in solid tumors and BP1002 in separate clinical trials for AML and lymphoma. Additionally, the Company had prepaid insurance expenses of \$0.4 million. As of December 31, 2023, other current assets included prepaid expenses of \$1.4 million, comprised primarily of prepayments of \$0.9 million made for the Company's clinical trials for BP1002 in AML and lymphoma and BP1001-A in solid tumors as well as prepaid insurance of \$0.3 million, prepaid Delaware franchise tax of \$0.1 million and other prepaid expenses of \$0.1 million.

### **5. Accounts Payable**

As of September 30, 2024, current liabilities included accounts payable of \$1.0 million, comprised primarily of expenses related to clinical trial expenses of \$0.5 million, legal and patent fees of \$0.2 million, expenses related to the Company's recent financing activity of \$0.2 million and other accounts payables of \$0.1 million. As of December 31, 2023, current liabilities included accounts

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payable of \$0.5 million, comprised primarily of expenses related to clinical trial expenses of \$0.3 million, legal and patent fees of \$0.1 million and other accounts payables of \$0.1 million.



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The following table summarizes the Company’s 2023 Warrants measured at fair value within the hierarchy on a recurring basis as of December 31, 2023:

	Fair Value Measurements at			
	December 31, 2023			
	Level 1	Level 2	Level 3	Total
	(in thousands)			
<b>Liabilities:</b>				
Warrant liability	\$ —	\$ —	\$ 863	\$ 863

The following table summarizes changes to the fair value of the Level 3 Warrants for the nine months ended September 30, 2024:

	Fair Value of Warrant Liability
	(in thousands)
Balance at December 31, 2023	\$ 863
Issuance	1,655
Change in fair value	(2,216)
Balance at September 30, 2024	\$ 302

The Company utilized the Black-Scholes valuation model for estimating the fair value of the Warrants using the following assumptions as of September 30, 2024:

	As of September 30, 2024
Risk-free interest rate	3.58 %
Expected volatility	109 %
Expected term in years	4.4
Dividend yield	— %

## 9. Stockholders’ Equity

**Issuances of Common Stock** - On August 3, 2023, the Company entered into a placement agency agreement with Roth Capital Partners, LLC relating to a best efforts public offering of an aggregate of 175,000 shares of its common stock, together with warrants to purchase up to 175,000 shares of its common stock (the “2023 Warrants”), for gross proceeds of approximately \$2.1 million (the “2023 Public Offering”). The 2023 Public Offering was made pursuant to a registration statement on Form S-1, as amended (File No. 333-272879), which was declared effective by the SEC on August 2, 2023. The 2023 Public Offering closed on August 7, 2023. The net proceeds from the offering, after deducting the placement agent’s fees and expenses and the Company’s offering expenses, and excluding the proceeds, if any, from the exercise of the warrants issued in the offering, were approximately \$1.7 million.

On March 25, 2024, the Company entered into a securities purchase agreement with a certain institutional and accredited investor pursuant to which the Company agreed to sell, in a registered direct offering, an aggregate of 75,000 shares of its common stock for gross proceeds of approximately \$0.3 million under the base prospectus contained in the 2022 Shelf Registration Statement and a related prospectus supplement filed with the SEC on March 27, 2024 (the “March 2024 Registered Direct Offering”). In a concurrent private placement, the Company also agreed pursuant to the securities purchase agreement to issue to such investor warrants to purchase up to 75,000 shares of its common stock at an exercise price of \$3.865 per share (the “March 2024 Private Placement”). The March 2024 Registered Direct Offering and the March 2024 Private Placement closed on March 27, 2024. The net proceeds from the offerings, after deducting the placement agent’s fees and expenses and the Company’s offering expenses, and excluding the proceeds, if any, from the exercise of the warrants issued in the offerings, were approximately \$0.2 million.

On April 4, 2024, the Company entered into the At The Market Offering Agreement with Wainwright, as sales agent, pursuant to which the Company may offer and sell, from time to time, through Wainwright, shares of its common stock. Under the At The Market Offering Agreement, Wainwright may sell shares by any method deemed to be an “at the market” offering as defined in Rule 415 under the Securities Act, as amended, or any other method permitted by law, including in privately negotiated transactions.

The Company or Wainwright may suspend or terminate the offering of shares upon notice to the other party and subject to other conditions. The Company will pay Wainwright a commission of 3.0% of the aggregate gross proceeds from each sale of shares under the At The Market Offering Agreement and have agreed to provide Wainwright with customary indemnification and contribution rights. The Company has also agreed to reimburse Wainwright for certain specified expenses. The Company is subject to certain restrictions on its ability to offer and sell shares of its common stock under the At The Market Offering Agreement. On April 4, 2024, in connection with the execution of the At The Market Offering Agreement, the Company filed with the SEC a prospectus supplement (the “Initial ATM Prospectus Supplement”) to the base prospectus contained in the 2022 Shelf Registration Statement, which Initial ATM Prospectus Supplement related to the offering of up to \$2.0 million of shares of the Company’s common stock under the At The Market Offering Agreement. Subsequent to entering into the Offering Agreement, the Company offered and sold 436,511 shares of common stock for gross proceeds of approximately \$2.0 million and terminated the offering under the Initial ATM Prospectus Supplement on April 19, 2024. The net proceeds from such offering, after deducting commissions and its offering expenses, were approximately \$1.8 million.

On April 18, 2024, the Company entered into a securities purchase agreement with certain institutional and accredited investors pursuant to which the Company agreed to sell, in a registered direct offering, an aggregate of 375,000 shares of its common stock for gross proceeds of approximately \$1.2 million under the base prospectus contained in the 2022 Shelf Registration Statement and a related prospectus supplement filed with the SEC on April 19, 2024 (the “April 2024 Registered Direct Offering”). In a concurrent private placement, the Company also agreed pursuant to the securities purchase agreement to issue to such investors warrants to purchase up to 375,000 shares of its common stock at an exercise price of \$3.10 per share (the “April 2024 Private Placement”). The April 2024 Registered Direct Offering and the April 2024 Private Placement closed on April 19, 2024. The net proceeds from the offerings, after deducting the placement agent’s fees and expenses and the Company’s offering expenses, and excluding the proceeds, if any, from the exercise of the warrants issued in the offerings, were approximately \$0.9 million.

On April 19, 2024, the Company determined to increase the number of shares available for sale under the At The Market Offering Agreement, up to an additional aggregate offering price of approximately \$1.1 million, which shares are being offered and sold pursuant to the 2022 Shelf Registration Statement and a prospectus supplement and accompanying prospectus filed with the SEC on April 19, 2024 (the “Subsequent ATM Prospectus Supplement”). As of June 30, 2024, the Company has offered and sold 334,929 shares of common stock under the Subsequent ATM Prospectus Supplement for gross proceeds of approximately \$1.1 million. The net proceeds from such offering, after deducting commissions and the Company’s offering expenses, were approximately \$1.0 million.

On June 3, 2024, the Company entered into a securities purchase agreement with a certain institutional and accredited investor pursuant to which the Company agreed to sell, in a private placement, an aggregate of (i) 180,000 shares of its common stock, (ii) pre-funded warrants to purchase up to 1,629,955 shares of its common stock at an exercise price of \$0.001 per share, (iii) series A warrants to purchase up to 1,809,955 shares of its common stock at an exercise price of \$2.00 per share and (iv) series B warrants to purchase up to 1,809,955 shares of its common stock at an exercise price of \$2.00 per share for gross proceeds of approximately \$4.0 million (the “June 2024 PIPE”). The June 2024 PIPE closed on June 5, 2024. The net proceeds from the offering, after deducting the placement agent’s fees and expenses and the Company’s offering expenses, and excluding the proceeds, if any, from the exercises of the warrants issued in the offering, were approximately \$3.3 million.

Stockholders’ (Deficit) Equity totaled (\$0.7) million as of September 30, 2024 compared to \$0.4 million as of December 31, 2023. There were 3,710,190 shares of common stock issued and outstanding as of September 30, 2024. There were no shares of preferred stock issued and outstanding as of September 30, 2024.

## 10. Stock-Based Compensation Plan

**The 2022 Plan** – On December 15, 2022, the Company’s stockholders approved the Bio-Path Holdings, Inc. 2022 Stock Incentive Plan (the “2022 Plan”), which replaced the 2017 Stock Incentive Plan, as amended (the “2017 Plan,” and together with the 2022 Plan, the “Plans”). As of stockholder approval of the 2022 Plan on December 15, 2022, no further awards will be made under the 2017 Plan. The 2022 Plan provides for the grant of Incentive Stock Options, Non-Qualified Stock Options, Restricted Shares, Restricted Share Units, Stock Appreciation Rights and other stock-based awards, or any combination of the foregoing, to the Company’s employees, non-employee directors and consultants. As of December 31, 2023, there were 65,000 shares of common stock reserved for future issuance of awards under the 2022 Plan. Under the 2022 Plan, the exercise price of awards is determined by the Board of Directors or the compensation committee of the Board of Directors, and for options, may not be less than the fair market value as determined by the closing stock price at the date of the grant. Each option and award under the 2022 Plan shall vest and



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expire as determined by the Board of Directors or the compensation committee. Options expire no later than ten years from the date of grant. All grants provide for accelerated vesting if there is a change in control, as defined in the 2022 Plan.

Stock-based compensation expense for the three months ended September 30, 2024 and 2023 was \$0.1 million and \$0.2 million, respectively. Of these amounts, stock-based compensation expense for personnel involved in the Company's general and administrative activities for each of the three months ended September 30, 2024 and 2023 was \$0.1 million and \$0.2 million, respectively. Stock-based compensation expense for personnel involved in the Company's research and development activities for the three months ended September 30, 2024 and 2023 was \$34,000 and \$45,000, respectively.

Stock-based compensation expense for the nine months ended September 30, 2024 and 2023 was \$0.4 million and \$0.6 million, respectively. Of these amounts, stock-based compensation expense for personnel involved in the Company's general and administrative activities for the nine months ended September 30, 2024 and 2023 was \$0.3 million and \$0.4 million, respectively. Stock-based compensation expense for personnel involved in the Company's research and development activities for each of the nine months ended September 30, 2024 and 2023 was \$0.1 million.

The Company utilized the Black-Scholes valuation model for estimating the fair value of the stock options granted, with the following weighted-average assumptions for options granted in the nine months ended September 30, 2024 and 2023:

	2024	2023
Risk-free interest rate	4.00 %	3.42 %
Expected volatility	134 %	129 %
Expected term in years	6.0	6.0
Dividend yield	— %	— %

The following summary represents option activity under the Company's stock-based compensation plans for the nine months ended September 30, 2024:

	Options (in thousands)	Weighted- Average Exercise Price
Outstanding at December 31, 2023	43	\$ 161.20
Granted	53	\$ 1.55
Outstanding at September 30, 2024	96	\$ 71.40
Vested and expected to vest September 30, 2024	94	\$ 72.74
Exercisable at September 30, 2024	34	\$ 184.17

As of September 30, 2024, outstanding stock options did not have any aggregate intrinsic value. The aggregate intrinsic value represents the total pretax intrinsic value (the difference between the Company's closing stock price on September 30, 2024 and the exercise price, multiplied by the number of in-the-money options) that would have been received by the option holders had all option holders exercised their options on September 30, 2024. This amount changes based on the fair value of the Company's stock.

As of September 30, 2024, unamortized stock-based compensation expense for all outstanding options was \$0.5 million, which is expected to be recognized over a weighted average vesting period of 1.6 years.

## 11. Commitments and Contingencies

**Drug Supplier Project Plan** – Total commitments for the Company's drug supplier project plan were \$0.8 million as of September 30, 2024, comprised of \$0.5 million for the manufacture of prexigebersen and BP1001-A drug products, \$0.2 million for manufacture of the Company's Grb2 drug substance and \$0.1 million for testing services. The Company expects to incur \$0.7 million of these commitments over the next 12 months.

## 12. Subsequent Events

**October 2024 Private Placement** – On October 8, 2024, the Company entered into a securities purchase agreement with a certain institutional and accredited investor, pursuant to which the Company agreed to sell in a private placement, an aggregate of (i) pre-funded warrants to purchase up to 4,597,702 shares of its common stock at an exercise price of \$0.001 per share, (ii) series A warrants to purchase up to 6,407,657 shares of its common stock at an exercise price of \$1.00 per share and (iii) series B warrants to purchase up to 6,407,657 shares of its common stock at an exercise price of \$1.00 per share for gross proceeds of approximately \$4.0 million (the “October 2024 Private Placement”). The October 2024 Private Placement closed on October 10, 2024 (the “Closing Date”). In connection with the October 2024 Private Placement, the Company and the investor agreed to cancel such investor’s series A warrants to purchase 1,809,955 shares of common stock at an exercise price of \$2.00 and series B warrants to purchase 1,809,955 shares of common stock at an exercise price of \$2.00 issued to such investor in connection with the June 2024 PIPE, effective as of the Closing Date. The net proceeds from the offering, after deducting the placement agent’s fees and expenses and the Company’s offering expenses, and excluding the proceeds, if any, from the exercises of the warrants issued in the offering, were approximately \$3.4 million.

**Lease** – In October 2024, the Company entered into an amendment to the lease agreement for its administrative office space located in Bellaire, Texas to extend the term of the lease for a period of one year, beginning on November 1, 2024 and ending on October 31, 2025.



**UP TO SHARES OF COMMON STOCK**  
**PRE-FUNDED WARRANTS TO PURCHASE UP TO SHARES OF COMMON STOCK UP TO SHARES OF COMMON**  
**STOCK UNDERLYING THE PRE-FUNDED WARRANTS**  
**SERIES A COMMON WARRANTS TO PURCHASE UP TO SHARES OF COMMON STOCK**  
**UP TO SHARES OF COMMON STOCK UNDERLYING THE SERIES A COMMON WARRANTS**  
**SERIES B COMMON WARRANTS TO PURCHASE UP TO SHARES OF COMMON STOCK**  
**UP TO SHARES OF COMMON STOCK UNDERLYING THE SERIES B COMMON WARRANTS**  
**PLACEMENT AGENT WARRANTS TO PURCHASE UP TO SHARES OF COMMON STOCK UP TO SHARES OF**  
**COMMON STOCK UNDERLYING THE PLACEMENT AGENT WARRANTS**

**PRELIMINARY PROSPECTUS**

, 2025

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**PART II**  
**INFORMATION NOT REQUIRED IN PROSPECTUS**

**Item 13. Other Expenses of Issuance and Distribution.**

The following table sets forth an estimate of the fees and expenses payable by the registrant in connection with the issuance and distribution of the securities being registered, other than Placement Agent fees. All amounts are estimated, except the Securities and Exchange Commission (“SEC”) registration fee and the FINRA filing fee. All of the expenses below will be paid by us.

	<b>AMOUNT</b>
SEC registration fee	\$ 4,736.53
FINRA Filing Fee	\$ 5,140.63
Printing and related expenses	\$ 2,500
Legal fees and expenses	\$ 80,000
Transfer agent and registrar fees and expenses	\$ 10,000
Accounting fees and expenses	\$ 10,000
Miscellaneous expenses	\$ 1,000
<b>Total</b>	<b>\$ 113,377.16</b>

**Item 14. Indemnification of Directors and Officers.**

Section 102(b)(7) of the Delaware General Corporation Law (the “DGCL”) permits a corporation to eliminate or limit the personal liability of its directors to the corporation or its stockholders for monetary damages for a breach of fiduciary duty as a director, except where the director breached his or her duty of loyalty, failed to act in good faith, engaged in intentional misconduct or knowingly violated a law, authorized the payment of a dividend or approved a stock repurchase in violation of Delaware corporate law or obtained an improper personal benefit. Our certificate of incorporation provides that to the fullest extent elimination or limitation of personal liability of directors is permitted by the DGCL, no director of the Company shall be liable to the Company or its stockholders for monetary damages for breach of fiduciary duty as a director.

Section 145 of the DGCL permits a corporation to indemnify a director, officer, employee or agent of the corporation and certain other persons serving at the request of the corporation in related capacities against expenses (including attorneys’ fees), judgments, fines and amounts paid in settlements actually and reasonably incurred by the person in connection with an action, suit or proceeding to which he or she is party or is threatened to be made a party by reason of such position, if such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the corporation, and, in any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful, except that, in the case of actions brought by or in the right of the corporation, no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or other adjudicating court determines that, despite the adjudication of liability but in view of all of the circumstances of the case, such person is fairly and reasonably entitled to indemnification for such expenses which the Court of Chancery or such other court shall deem proper.

Our first amended and restated bylaws, as amended, and our certificate of incorporation provide that each person (and the heirs, executors or administrators of such person) who was or is made or is threatened to be made a party or is otherwise involved in any action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that such person is or was a director or officer of the Company shall be indemnified and held harmless by the Company to the fullest extent permitted by applicable law. Our certificate of incorporation also states that we will pay or reimburse the reasonable expenses incurred in defending any such action, suit or proceeding in advance of its final disposition if we have received an undertaking by the person receiving such payment or reimbursement to repay all amounts advanced if it should be ultimately determined that he or she is not entitled to be indemnified.

We have entered into indemnification agreements with each of our directors. The contractual rights to indemnification provided by these indemnity agreements are subject to the limitations and conditions specified in such agreements.

The effect of the foregoing is to require us to indemnify our officers and directors for any claim arising against such persons in their official capacities if such person acted in good faith and in a manner that he or she reasonably believed to be in or not contrary to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful. Insofar as indemnification for liabilities arising under the Securities Act of 1933, as amended (the “Securities Act”) may be permitted to our directors and officers, we have been advised that in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable.

We have directors and officers insurance which includes insurance for claims against these persons brought under securities laws.

**Item 15. Recent Sales of Unregistered Securities.**

Set forth below is information regarding securities issued by the Company since January 1, 2022 that were not registered under the Securities Act. Also included is the consideration received by the Company for such securities and information relating to the section of the Securities Act or rule of the SEC under which exemption from registration was claimed. On February 22, 2024, we effected a reverse stock split of our outstanding shares of common stock at a ratio of 1-for-20, and our common stock began trading on the split-adjusted basis on the Nasdaq Capital Market at the commencement of trading on February 23, 2024. Share and warrant amounts, as well as exercise prices, below have been adjusted where applicable to give effect to the 1-for-20 reverse stock split.

*2022 Registered Direct Offering*

On November 9, 2022, we completed the closing of a registered direct offering (the “2022 Registered Direct Offering”) with certain institutional and accredited investors for the sale of an aggregate of 40,000 shares of our common stock for gross proceeds of approximately \$2.0 million. On November, 9, 2022, we also completed a concurrent private placement (the “2022 Private Placement”), in which we issued to the investors in the 2022 Registered Direct Offering the warrants to purchase up to 40,000 shares of our common stock, with an exercise price of \$57.00 per share, which was subsequently amended to \$15.186 per share on August 7, 2023, exercisable from May 9, 2023 until May 9, 2028. Such warrants were issued in reliance on the exemption from registration provided by Section 4(a) (2) under the Securities Act and/or Regulation D promulgated thereunder. Each investor represented that it was an accredited investor, as defined in Rule 501 of Regulation D promulgated under the Securities Act.

*March 2024 Registered Direct Offering and Private Placement*

On March 25, 2024, we entered into a securities purchase agreement with a certain institutional and accredited investor pursuant to which we agreed to sell, in a registered direct offering, an aggregate of 75,000 shares of our common stock for gross proceeds of approximately \$0.3 million under a base prospectus contained in a shelf registration statement on Form S-3 with the SEC, which was declared effective by the SEC on June 14, 2022 (File No. 333-265282) (the “2022 Shelf Registration Statement”) and a related prospectus supplement filed with the SEC on March 27, 2024 (the “March 2024 Registered Direct Offering”). In a concurrent private placement, we also agreed pursuant to the securities purchase agreement to issue to such investor warrants to purchase up to 75,000 shares of our common stock at an exercise price of \$3.865 per share (the “March 2024 Private Placement”). The March 2024 Registered Direct Offering and the March 2024 Private Placement closed on March 27, 2024. The net proceeds from the offerings, after deducting the placement agent’s fees and expenses and our offering expenses, and excluding the proceeds, if any, from the exercise of the warrants issued in the offerings, were approximately \$0.2 million.

*April 2024 Registered Direct Offering and Private Placement*

On April 18, 2024, we entered into a securities purchase agreement with certain institutional and accredited investors pursuant to which we agreed to sell, in a registered direct offering, an aggregate of 375,000 shares of our common stock for gross proceeds of approximately \$1.2 million under the base prospectus contained in the 2022 Shelf Registration Statement and a related prospectus supplement filed with the SEC on April 19, 2024 (the “April 2024 Registered Direct Offering”). In a concurrent private placement, we also agreed pursuant to the securities purchase agreement to issue to such investors warrants to purchase up to 375,000 shares of our common stock at an exercise price of \$3.10 per share (the “April 2024 Private Placement”). The April 2024 Registered Direct Offering and the April 2024 Private Placement closed on April 19, 2024. The net proceeds from the offerings, after deducting the placement agent’s fees and expenses and our offering expenses, and excluding the proceeds, if any, from the exercise of the warrants issued in the offerings, were approximately \$0.9 million.

*June 2024 Private Placement*

On June 3, 2024, we entered into a securities purchase agreement with a certain institutional and accredited investor pursuant to which we agreed to sell, in a private placement, an aggregate of (i) 180,000 shares of our common stock, (ii) pre-funded warrants to purchase up to 1,629,955 shares of our common stock at an exercise price of \$0.001 per share, (iii) series A warrants to purchase up to 1,809,955 shares of our common stock at an exercise price of \$2.00 per share and (iv) series B warrants to purchase up to 1,809,955 shares of our common stock at an exercise price of \$2.00 per share for gross proceeds of approximately \$4.0 million (the “June 2024 Private Placement”). The June 2024 Private Placement closed on June 5, 2024. The net proceeds from the offering, after deducting the placement agent’s fees and expenses and our offering expenses, and excluding the proceeds, if any, from the exercises of the warrants issued in the offering, were approximately \$3.3 million.

*October 2024 Private Placement*

On October 8, 2024, we entered into a securities purchase agreement with a certain institutional and accredited investor pursuant to which we agreed to sell, in a private placement, an aggregate of (i) pre-funded warrants to purchase up to 4,597,702 shares of our common stock at an exercise price of \$0.001 per share, (ii) series A warrants to purchase up to 6,407,657 shares of our common stock at an exercise price of \$1.00 per share and (iii) series B warrants to purchase up to 6,407,657 shares of our common stock at an exercise price of \$1.00 per share for gross proceeds of approximately \$4.0 million (the “October 2024 Private Placement”). The October 2024 Private Placement closed on October 10, 2024 (the “Closing Date”). In connection with the October 2024 Private Placement, the Company and the investor agreed to cancel such investor’s series A warrants to purchase 1,809,955 shares of common stock at an exercise price of \$2.00 and series B warrants to purchase 1,809,955 shares of common stock at an exercise price of \$2.00 issued to such investor in connection with the June 2024 Private Placement, effective as of the Closing Date. The net proceeds from the offering, after deducting the placement agent’s fees and expenses and our offering expenses, and excluding the proceeds, if any, from the exercises of the warrants issued in the offering, were approximately \$3.4 million.

**Item 16. Exhibits and Financial Statement Schedules.**

**(a) Exhibits**

<b>Exhibit Number</b>	<b>Exhibit</b>
2.1	<a href="#">Agreement and Plan of Merger and Reorganization dated September 27, 2007, by and among the Company, Biopath Acquisition Corp., a Utah corporation and wholly owned subsidiary of the registrant, and Bio-Path, Inc., a Utah corporation (incorporated by reference to Exhibit 2.1 to the Company’s Current Report on Form 8-K filed on September 27, 2007).</a>
3.1	<a href="#">Certificate of Incorporation (incorporated by reference to Exhibit 3.3 to the Company’s Current Report on Form 8-K filed on January 6, 2015).</a>
3.2	<a href="#">Certificate of Amendment to the Certificate of Incorporation of Bio-Path Holdings, Inc. (incorporated by reference to Exhibit 3.1 to the Company’s Current Report on Form 8-K filed on February 9, 2018).</a>
3.3	<a href="#">Certificate of Amendment to the Certificate of Incorporation of Bio-Path Holdings, Inc. (incorporated by reference to Exhibit 3.1 to the Company’s Current Report on Form 8-K filed on January 16, 2019).</a>
3.4	<a href="#">Certificate of Amendment to the Certificate of Incorporation of Bio-Path Holdings, Inc. (incorporated by reference to Exhibit 3.1 to the Company’s Current Report on Form 8-K filed on February 23, 2024).</a>
3.5	<a href="#">First Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to the Company’s Current Report on Form 8-K filed on June 7, 2017).</a>
3.6	<a href="#">Amendment No. 1 to the First Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to the Company’s Current Report on Form 8-K filed on December 8, 2023).</a>
4.1	<a href="#">Form of Common Stock Certificate (incorporated by reference to Exhibit 4.1 to the Company’s Annual Report on Form 10-K filed on March 16, 2015).</a>

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<u>Exhibit Number</u>	<u>Exhibit</u>
4.2	<a href="#">Form of Underwriter Warrant issued to H.C. Wainwright &amp; Co., LLC and certain of its designees (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K filed on January 16, 2019).</a>
4.3	<a href="#">Form of Series A Warrant issued to certain investors (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K filed on January 22, 2019).</a>
4.4	<a href="#">Form of Warrant issued to H.C. Wainwright &amp; Co., LLC and certain of its designees (incorporated by reference to Exhibit 4.15 to the Company's Annual Report on Form 10-K filed on March 19, 2019).</a>
4.5	<a href="#">Form of Warrant issued to H.C. Wainwright &amp; Co., LLC and certain of its designees (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K filed on March 13, 2019).</a>
4.6	<a href="#">Form of Warrant issued to certain investors (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K filed on November 22, 2019).</a>
4.7	<a href="#">Form of Warrant issued to H.C. Wainwright &amp; Co., LLC and certain of its designees (incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K filed on November 22, 2019).</a>
4.8	<a href="#">Description of Bio-Path Holdings, Inc.'s Securities Registered under Section 12 of the Securities Exchange Act of 1934 (incorporated by reference to Exhibit 4.17 to the Company's Annual Report on Form 10-K filed on March 5, 2020).</a>
4.9	<a href="#">Form of Common Warrant (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K filed on November 9, 2022).</a>
4.10	<a href="#">Form of Common Warrant (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K filed on August 7, 2023).</a>
4.11	<a href="#">Warrant Agency Agreement, dated as of August 7, 2023, by and between the Company and Equiniti Trust Company, LLC (incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K filed on August 7, 2023).</a>
4.12	<a href="#">Form of Common Warrant (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K filed on March 26, 2024).</a>
4.13	<a href="#">Form of Warrant issued to H.C. Wainwright &amp; Co., LLC and certain of its designees (incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K filed on March 26, 2024).</a>
4.14	<a href="#">Form of Common Warrant (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K filed on April 19, 2024).</a>
4.15	<a href="#">Form of Warrant issued to H.C. Wainwright &amp; Co., LLC and certain of its designees (incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K filed on April 19, 2024).</a>
4.16	<a href="#">Form of Pre-Funded Common Warrant (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K filed on June 5, 2024).</a>
4.17	<a href="#">Form of Series A Warrant (incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K filed on June 5, 2024).</a>
4.18	<a href="#">Form of Series B Warrant (incorporated by reference to Exhibit 4.3 to the Company's Current Report on Form 8-K filed on June 5, 2024).</a>
4.19	<a href="#">Form of Warrant issued to H.C. Wainwright &amp; Co., LLC and certain of its designees (incorporated by reference to Exhibit 4.4 to the Company's Current Report on Form 8-K filed on June 5, 2024).</a>
4.20	<a href="#">Form of Pre-Funded Common Warrant (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K filed on October 11, 2024).</a>
4.21	<a href="#">Form of Series A Warrant (incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K filed on October 11, 2024).</a>
4.22	<a href="#">Form of Series B Warrant (incorporated by reference to Exhibit 4.3 to the Company's Current Report on Form 8-K filed on October 11, 2024).</a>

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<u>Exhibit Number</u>	<u>Exhibit</u>
4.23	<a href="#"><u>Form of Warrant issued to H.C. Wainwright &amp; Co., LLC and certain of its designees (incorporated by reference to Exhibit 4.4 to the Company's Current Report on Form 8-K filed on October 11, 2024).</u></a>
4.24**	Form of Series A Warrant.
4.25**	Form of Series B Warrant.
4.26**	Form of Pre-Funded Warrant.
4.27**	Form of Placement Agent Warrant.
5.1**	Opinion of Winstead PC.
10.1+	<a href="#"><u>Employment Agreement – Peter H. Nielsen (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on February 19, 2008).</u></a>
10.2+	<a href="#"><u>Amended 2007 Stock Incentive Plan (incorporated by reference to Exhibit 4.1 to the Company's Registration Statement on Form S-8 filed on December 10, 2008).</u></a>
10.3+	<a href="#"><u>First Amendment to First Amended 2007 Stock Incentive Plan (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed on August 14, 2013).</u></a>
10.4	<a href="#"><u>Form of Waiver, Consent and Amendment to that certain Securities Purchase Agreement by and between Sabby Healthcare Volatility Master Fund, Ltd. and Sabby Volatility Warrant Master Fund, Ltd. (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K on January 21, 2014).</u></a>
10.5+	<a href="#"><u>First Amendment to Employment Agreement, dated March 26, 2014 – Peter H. Nielsen (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on March 26, 2014).</u></a>
10.6	<a href="#"><u>Lease Agreement dated April 16, 2014 by and between the Company and Pin Oak North Parcel TT, LLC (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on April 18, 2014).</u></a>
10.7	<a href="#"><u>Form of Indemnification Agreement (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on April 16, 2015).</u></a>
10.8+	<a href="#"><u>Bio-Path Holdings, Inc. 2017 Stock Incentive Plan (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on December 27, 2017).</u></a>
10.9	<a href="#"><u>Form of Incentive Stock Option Award Agreement under 2017 Stock Incentive Plan (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on December 27, 2017).</u></a>
10.10	<a href="#"><u>Form of Non-Qualified Stock Option Award Agreement under 2017 Stock Incentive Plan (incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K filed on December 27, 2017).</u></a>
10.11	<a href="#"><u>Form of Restricted Share Unit Award Agreement (Time-Vested) under 2017 Stock Incentive Plan (incorporated by reference to Exhibit 10.4 to the Company's Current Report on Form 8-K filed on December 27, 2017).</u></a>
10.12	<a href="#"><u>Form of Restricted Share Unit Award Agreement (Performance-Based) under 2017 Stock Incentive Plan (incorporated by reference to Exhibit 10.5 to the Company's Current Report on Form 8-K filed on December 27, 2017).</u></a>
10.13	<a href="#"><u>Form of Restricted Share Award Agreement under 2017 Stock Incentive Plan (incorporated by reference to Exhibit 10.6 to the Company's Current Report on Form 8-K filed on December 27, 2017).</u></a>
10.14	<a href="#"><u>Form of Stock Appreciation Right Award Agreement under 2017 Stock Incentive Plan (incorporated by reference to Exhibit 10.7 to the Company's Current Report on Form 8-K filed on December 27, 2017).</u></a>
10.15	<a href="#"><u>Form of Securities Purchase Agreement (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on January 22, 2019).</u></a>
10.16	<a href="#"><u>Form of Securities Purchase Agreement (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on March 13, 2019).</u></a>



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<u>Exhibit Number</u>	<u>Exhibit</u>
10.17	<a href="#">First Amendment to Lease Agreement dated April 16, 2014 by and between the Company and Pin Oak North Parcel TT, LLC (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on June 4, 2019).</a>
10.18	<a href="#">Form of Securities Purchase Agreement by and between the Company and certain investors (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on November 22, 2019).</a>
10.19+	<a href="#">First Amendment to Bio-Path Holdings, Inc. 2017 Stock Incentive Plan (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on December 23, 2019).</a>
10.20+	<a href="#">Second Amendment to Bio-Path Holdings, Inc. 2017 Stock Incentive Plan (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed on May 16, 2022).</a>
10.21	<a href="#">Form of Securities Purchase Agreement (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on November 9, 2022).</a>
10.22+	<a href="#">Bio-Path Holdings, Inc. 2022 Stock Incentive Plan (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on December 20, 2022).</a>
10.23	<a href="#">Form of Incentive Stock Option Award Agreement under 2022 Stock Incentive Plan (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on December 20, 2022).</a>
10.24	<a href="#">Form of Non-Qualified Stock Option Award Agreement under 2022 Stock Incentive Plan (incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K filed on December 20, 2022).</a>
10.25	<a href="#">Form of Restricted Share Unit Award Agreement (Time-Vested) under 2022 Stock Incentive Plan (incorporated by reference to Exhibit 10.4 to the Company's Current Report on Form 8-K filed on December 20, 2022).</a>
10.26	<a href="#">Form of Restricted Share Unit Award Agreement (Performance-Based) under 2022 Stock Incentive Plan (incorporated by reference to Exhibit 10.5 to the Company's Current Report on Form 8-K filed on December 20, 2022).</a>
10.27	<a href="#">Form of Restricted Share Award Agreement under 2022 Stock Incentive Plan (incorporated by reference to Exhibit 10.6 to the Company's Current Report on Form 8-K filed on December 20, 2022).</a>
10.28	<a href="#">Form of Stock Appreciation Right Award Agreement under 2022 Stock Incentive Plan (incorporated by reference to Exhibit 10.7 to the Company's Current Report on Form 8-K filed on December 20, 2022).</a>
10.29	<a href="#">Placement Agency Agreement, dated as of August 3, 2023, by and between the Company and Roth Capital Partners, LLC (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on August 7, 2023).</a>
10.30	<a href="#">Form of Securities Purchase Agreement, dated as of August 3, 2023, by and between the Company and certain purchasers (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on August 7, 2023).</a>
10.31	<a href="#">Form of Warrant Amendment Agreement, dated as of August 3, 2023, by and between the Company and certain warrant holders (incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K filed on August 7, 2023).</a>
10.32	<a href="#">Form of Securities Purchase Agreement, dated as of March 25, 2024, by and between the Company and certain purchasers (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on March 26, 2024).</a>
10.33	<a href="#">At The Market Offering Agreement, dated April 4, 2024, by and between the Company and H.C. Wainwright &amp; Co., LLC (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on April 4, 2024).</a>
10.34	<a href="#">Form of Securities Purchase Agreement, dated as of April 18, 2024, by and between the Company and certain purchasers (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on April 19, 2024).</a>

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<u>Exhibit Number</u>	<u>Exhibit</u>
10.35	<a href="#">Form of Securities Purchase Agreement, dated as of June 3, 2024, by and between the Company and certain purchasers (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on June 5, 2024).</a>
10.36	<a href="#">Form of Registration Rights Agreement, dated as of June 3, 2024, by and between the Company and certain purchasers (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on June 5, 2024).</a>
10.37	<a href="#">Securities Purchase Agreement, dated as of October 8, 2024, by and between the Company and certain purchasers (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on October 11, 2024).</a>
10.38	<a href="#">Registration Rights Agreement, dated as of October 8, 2025, by and between the Company and certain purchasers (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on October 11, 2024).</a>
10.39+	<a href="#">First Amendment to 2022 Stock Incentive Plan (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on December 13, 2024).</a>
10.40	<a href="#">Second Amendment to Lease Agreement, dated October 23, 2024, by and between the Company and the registered holders of GS Mortgage Securities Corporation II, Commercial Mortgage Pass-Through Certificates, Series 2018-GS9, and the RR Interest Owner v. Norvin Pin Oak North LLC, et al., Case No.: 2024-369993 (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q filed on November 14, 2024).</a>
10.41**	Form of Securities Purchase Agreement.
21.1	<a href="#">Subsidiaries of Bio-Path Holdings, Inc. (incorporated by reference to Exhibit 21.1 to the Company's Annual Report on Form 10-K filed on March 5, 2020).</a>
23.1*	<a href="#">Consent of Ernst &amp; Young LLP.</a>
23.2**	Consent of Winstead PC (included in Exhibit 5.1)
24.1*	<a href="#">Power of Attorney (included on signature page to this registration statement)</a>
107*	<a href="#">Filing fee table.</a>

\* Filed herewith.

\*\* To be filed by amendment.

+ Management contract or compensatory plan.

**(b) Financial statement schedules.**

No financial statement schedules are provided because the information called for is not required or is shown either in the financial statements or the notes thereto.

**Item 17. Undertakings.**

The undersigned registrant hereby undertakes:

- (1) to file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
  - (i) to include any prospectus required by section 10(a)(3) of the Securities Act of 1933;
  - (ii) to reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the

information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement and

(iii) to include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement; provided, however, that paragraphs (1)(i), (ii), and (iii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement;

(2) that, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof;

(3) to remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering;

(4) that, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(i) each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(ii) each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date;

(5) that, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

(iii) the portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and

(iv) any other communication that is an offer in the offering made by the undersigned registrant to the purchaser;

(6) that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof;

(7) insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue; and

(8) that:

(i) for purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective; and

(ii) for the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

**SIGNATURES**

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Bellaire, State of Texas, on January 17, 2025.

**BIO-PATH HOLDINGS, INC.**

By: /s/ Peter H. Nielsen

Peter H. Nielsen  
President  
Chief Executive Officer  
(Principal Executive Officer)  
Chief Financial Officer  
(Principal Financial Officer and Principal Accounting Officer)

**POWER OF ATTORNEY**

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Peter H. Nielsen his or her true and lawful attorney-in-fact, with the power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments (including pre-effective amendments and post-effective amendments) to this registration statement, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent or his substitutes or substitute, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement has been signed below by the following persons in the capacities and on the dates indicated.

<u>/s/ Peter H. Nielsen</u> Peter H. Nielsen President, Chief Executive Officer (Principal Executive Officer), Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer) and Director	January 17, 2025
<u>/s/ Heath W. Cleaver</u> Heath W. Cleaver Director	January 17, 2025
<u>/s/ Paul D. Aubert</u> Paul D. Aubert Director	January 17, 2025
<u>/s/ Aline Sherwood</u> Aline Sherwood Director	January 17, 2025
<u>/s/ Douglas P. Morris</u> Douglas P. Morris Director and Secretary	January 17, 2025

**Consent of Independent Registered Public Accounting Firm**

We consent to the reference to our firm under the caption “Experts” and to the use of our report dated March 7, 2024, in the Registration Statement (Form S-1) and related Prospectus of Bio-Path Holdings, Inc. dated January 17, 2025.

/s/ Ernst & Young LLP

Houston, Texas  
January 17, 2025

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## Calculation of Filing Fee Tables

Form S-1  
(Form Type)Bio-Path Holdings, Inc.  
(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered Securities

Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Share	Maximum Aggregate Offering Price (1)(2)	Fee Rate	Amount of Registration Fee
<b>Newly Registered Securities</b>							
Fees to Be Paid	Equity	Common Stock, par value \$0.001 per share	457(o)		\$ 10,000,000	0.00015310	\$ 1,531
Fees to Be Paid	Equity	Series A Common Warrants	457(g)			(3)	
Fees to Be Paid	Equity	Common Stock, par value \$0.001 per share, underlying Series A Common Warrants	457(o)		\$ 10,000,000	0.00015310	\$ 1,531
Fees to Be Paid	Equity	Series B Common Warrants	457(g)			(3)	
Fees to Be Paid	Equity	Common Stock, par value \$0.001 per share, underlying Series B Common Warrants	457(o)		\$ 10,000,000	0.00015310	\$ 1,531
Fees to Be Paid	Equity	Pre-Funded Warrants (4)	457(g)				
Fees to Be Paid	Equity	Common Stock, par value \$0.001 per share, underlying Pre-Funded Warrants (4)	457(o)				
Fees to Be Paid	Equity	Placement Agent Warrants (5)	457(g)				
Fees to Be Paid	Equity	Common Stock, par value \$0.001 per share, underlying Placement Agent Warrants	457(o)		\$ 937,500 (6)	0.00015310	\$ 143.53
Total Offering Amounts					\$ 30,937,500		\$ 4,736.53
Total Fees Previously Paid							\$ 0.00
Total Fee Offsets							\$ 0.00
Net Fees Due							\$ 4,736.53

- (1) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(o) of the Securities Act of 1933, as amended (the "Securities Act").
- (2) Pursuant to Rule 416(a) promulgated under the Securities Act, there are also being registered an indeterminable number of additional securities as may be issued to prevent dilution resulting from stock splits, stock dividends, or similar transactions.
- (3) In accordance with Rule 457(g), the entire registration fee for the warrants is allocated to the shares of common stock underlying the warrants, and no separate fee is payable for the warrants.
- (4) The proposed maximum aggregate offering price of the common stock will be reduced on a dollar-for-dollar basis based on the offering price of any Pre-Funded Warrants issued in the offering, and the proposed maximum aggregate offering price of the Pre-Funded Warrants to be issued in the offering will be reduced on a dollar-for-dollar basis based on the offering price of any common stock issued in the offering. Accordingly, the proposed maximum aggregate offering price of the common stock and Pre-Funded Warrants (including the common stock issuable upon exercise of the Pre-Funded Warrants), if any, is \$10,000,000.
- (5) We have agreed to issue to the placement agent or its designees as compensation in connection with the offering, the placement agent warrants (the "Placement Agent Warrants") to purchase shares of common stock equal to 7.5% of the shares of common stock issued in the offering (including the Pre-Funded Warrants issued in the offering). The Placement Agent Warrants are exercisable at a per share exercise price equal to 125% of the combined public offering price per share of common stock and accompanying Common Warrant offered hereby.
- (6) We have calculated the proposed maximum aggregate offering price of the shares of common stock underlying the Placement Agent Warrants by assuming that such Placement Agent Warrants are exercisable at a price per share equal to 125% of the combined public offering price per share of common stock and accompanying Common Warrant.