As filed with the Securities and Exchange Commission on June 17, 2025

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-1

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

LIXTE BIOTECHNOLOGY HOLDINGS, INC.

(Exact name of registrant as specified in its charter)

Delaware	2834	20-2903526
(State or other jurisdiction of incorporation or organization)	(Primary standard industrial classification code number)	(I.R.S. employer identification number)

680 East Colorado Boulevard, Suite 180
Pasadena, CA 91101
(631) 830-7092
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Bastiaan van der Baan
Chief Executive Officer
680 East Colorado Boulevard, Suite 180
Pasadena, CA 91101
(631) 830-7092
(Name, address, including zip code, and telephone number, including area code, of agent for service)

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

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, please 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	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
		Emerging growth company	☐

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 Securities Act of 1933 or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

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 it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

The information in this prospectus is not complete and may be changed. The securities may not be sold until the registration statement filed with the SEC is declared effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Subject to Completion, dated June 17, 2025

PRELIMINARY PROSPECTUS

5,263,158 Shares of Common Stock, and/or up to
5,263,158 Pre-Funded Warrants to purchase 5,263,158 Shares of Common Stock
(and 5,263,158 shares of Common Stock underlying the Pre-Funded Warrants)

LIXTE BIOTECHNOLOGY HOLDINGS, INC.

This is a firm commitment public offering of 5,263,158 shares of common stock ("Common Stock") at an assumed public offering price of $1.14 per share of Common Stock, which is the last reported sales price of our Common Stock on the Nasdaq Capital Market on June 13, 2025.

The public offering price per share of Common Stock will be determined between us and the underwriter based on market conditions at the time of pricing, and may be at a discount to the then current market price of our common stock. Therefore, the recent market price of our common stock referenced throughout this preliminary prospectus may not be indicative of the final offering price per share of Common Stock.

Our common stock is listed on the Nasdaq Capital Market under the symbol "LIXT". The closing price of our common stock on the Nasdaq Capital Market on June 13, 2025 was $1.14 per share.

We are also offering to investors in shares of Common Stock that would otherwise result in the investor's beneficial ownership exceeding 4.99% (or, at the election of the purchaser, 9.99%) of our outstanding shares of common stock immediately following the consummation of this offering the opportunity to purchase pre-funded warrants ("Pre-Funded Warrants") in lieu of Common Stock. Each Pre-Funded Warrant consists of one pre-funded warrant ("Pre-Funded Warrant") to purchase one share of our common stock. The purchase price of each Pre-Funded Warrant is $1.13999 (which is equal to the assumed public offering price per share of Common Stock of $1.14 minus $0.00001). Subject to limited exceptions, a holder of Pre-Funded Warrants will not have the right to exercise any portion of its Pre-Funded Warrants if the holder, together with its affiliates, would beneficially own in excess of 4.99% (or, at the election of the holder, such limit may be increased to up to 9.99%) of the common stock outstanding immediately after giving effect to such exercise. The Pre-Funded Warrants will be immediately exercisable (subject to the beneficial ownership cap) and may be exercised at any time until all of the Pre-Funded Warrants are exercised in full. For each Pre-Funded Warrant purchased, the number of shares of Common Stock will be decreased on a one-for-one basis. The Pre-Funded Warrants have no stand-alone rights and will not be certificated or issued as stand-alone securities.

We have engaged Spartan Capital Securities, LLC to act as our exclusive underwriter in connection with this offering, hereinafter referred to as the "underwriter" or "Spartan".

There is no established trading market for the Pre-Funded Warrants and we do not expect an active trading market to develop. We do not intend to list the Pre-Funded Warrants on any securities exchange or other trading market. Without an active trading market, the liquidity of these securities will be limited.

Investing in our securities is speculative and involves a high degree of risk. You should carefully consider the risk factors beginning on page 16 of this prospectus before purchasing our securities.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	Per Share of Common Stock	Total
Public offering price	$	$
Underwriter discount[(1)]	$	$
Proceeds to us, before expenses	$	$

(1) We have agreed to pay the underwriter a cash fee equal to 8.0% of the aggregate gross proceeds raised in this offering. We have also agreed to provide the underwriter with a 1.0% non-accountable expense allowance and to reimburse the underwriter for certain of its offering-related expenses, including its legal fees, up to a maximum of $125,000, which are not included in the above table. We have agreed to issue to the underwriter five-year warrants (the "Underwriter Warrants") to purchase up to 5.0% of the number of shares of Common Stock and the over-allotment option at an exercise price of 125% of the offering price per share of Common Stock. See "Underwriting" for a description of the compensation to be received by the underwriter.

We have granted the underwriter a 45-day option to purchase up to an additional 789,474 shares of Common Stock, representing 15% of the shares of Common Stock sold in the offering, at an assumed public offering price of $1.14 per share of Common Stock.

The underwriter is expected to deliver the Common Stock (and Pre-Funded Warrants, if any) on or about June __, 2025, subject to the satisfaction of customary closing conditions.

Sole Underwriter

Spartan Capital Securities, LLC

The date of this prospectus is June 17, 2025.

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ABOUT THIS PROSPECTUS

You should rely only on the information contained in or incorporated by reference into this prospectus and in any free writing prospectus. We have not authorized anyone to provide you with information different from that contained in this prospectus. The sale of our securities will only be made in jurisdictions where offers and sales are permitted. The information in this prospectus is accurate only as of the date of this prospectus, and any information we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus or any sale of our securities.

We have 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 our securities and the distribution of this prospectus outside of the United States.

We own or have rights to trademarks or trade names that we use in connection with the operation of our business, including our corporate names, logos and website names. In addition, we own or have the rights to copyrights, trade secrets and other proprietary rights that protect the content of our products. This prospectus may also contain trademarks, service marks and trade names of other companies, which are the property of their respective owners. Our use or display of third parties' trademarks, service marks, trade names or products in this prospectus is not intended to, and should not be read to, imply a relationship with or endorsement or sponsorship of us. Solely for convenience, some of the copyrights, trade names and trademarks referred to in this prospectus are listed without their ©, ® and ™ symbols, but we will assert, to the fullest extent under applicable law, our rights to our copyrights, trade names and trademarks. All other trademarks are the property of their respective owners.

PROSPECTUS SUMMARY

The following summary highlights information contained or incorporated by reference elsewhere in this prospectus and does not contain all of the information that you should consider in making your investment decision. Before investing in our securities, you should carefully read this entire prospectus, including our consolidated financial statements and the related notes and other documents incorporated by reference herein, as well as the information under the caption "Risk Factors" herein and under similar headings in the other documents that are incorporated by reference into this prospectus including documents that are filed after the date hereof. Some of the statements in this prospectus constitute forward-looking statements that involve risks and uncertainties. See "Cautionary Note Regarding Forward-Looking Statements". Our actual results could differ materially from those anticipated in such forward-looking statements as a result of certain factors, including those discussed in the "Risk Factors" and other sections included in or incorporated by reference herein. In this prospectus, unless otherwise stated or the context otherwise requires, references to "Lixte", the "Company", "we", "us", "our", or similar references mean Lixte Biotechnology Holdings, Inc.

Company Overview

We are a clinical-stage biopharmaceutical company focused on identifying new targets for cancer drug development and developing and commercializing cancer therapies. Our product pipeline is primarily focused on inhibitors of protein phosphatase 2A, which are used to enhance cytotoxic agents, radiation, immune checkpoint blockers and other cancer therapies. We believe that inhibitors of protein phosphatases have significant therapeutic potential for a broad range of cancers. We are focusing on the clinical development of a specific protein phosphatase inhibitor, referred to as LB-100, which has been shown to have clinical anti-cancer activity.

We believe that the mechanism by which LB-100 affects cancer cell growth is different from cancer agents currently approved for clinical use. LB-100 is currently being tested in clinical trials in Ovarian Clear Cell Carcinoma, Metastatic Micro Satellite Stable (MSS) Colon Cancer, and Advanced Soft Tissue Sarcoma. LB-100 has shown anti-cancer activity in animal models of glioblastoma multiforme, neuroblastoma, and medulloblastoma, all cancers of neural tissue. LB-100 has also been shown to enhance the effectiveness of commonly used anti-cancer drugs in animal models of melanoma, breast cancer and sarcoma. The enhancement of anti-cancer activity of these anti-cancer drugs occurs at doses of LB-100 that do not significantly increase toxicity in animals. It is therefore hoped that, when combined with standard anti-cancer regimens against many tumor types, LB-100 will improve therapeutic benefit.

As a compound moves through the FDA-approval process, it becomes an increasingly valuable property, but at a cost of additional investment at each stage. As the potential effectiveness of LB-100 has been documented at the clinical trial level, we have allocated resources to expand the breadth and depth of its patent portfolio. Our approach has been to operate with a minimum of overhead, moving compounds forward as efficiently and inexpensively as possible, and to raise funds to support each of these stages as certain milestones are reached. Our longer-term objective is to secure one or more strategic partnerships or licensing agreements with pharmaceutical companies with major programs in cancer.

Our activities are subject to significant risks and uncertainties, including the need for additional capital. We have not yet commenced any revenue-generating operations, does not have positive cash flows from operations, relies on stock-based compensation for a substantial portion of employee and consultant compensation, and is dependent on periodic access to equity capital to fund its operating requirements.

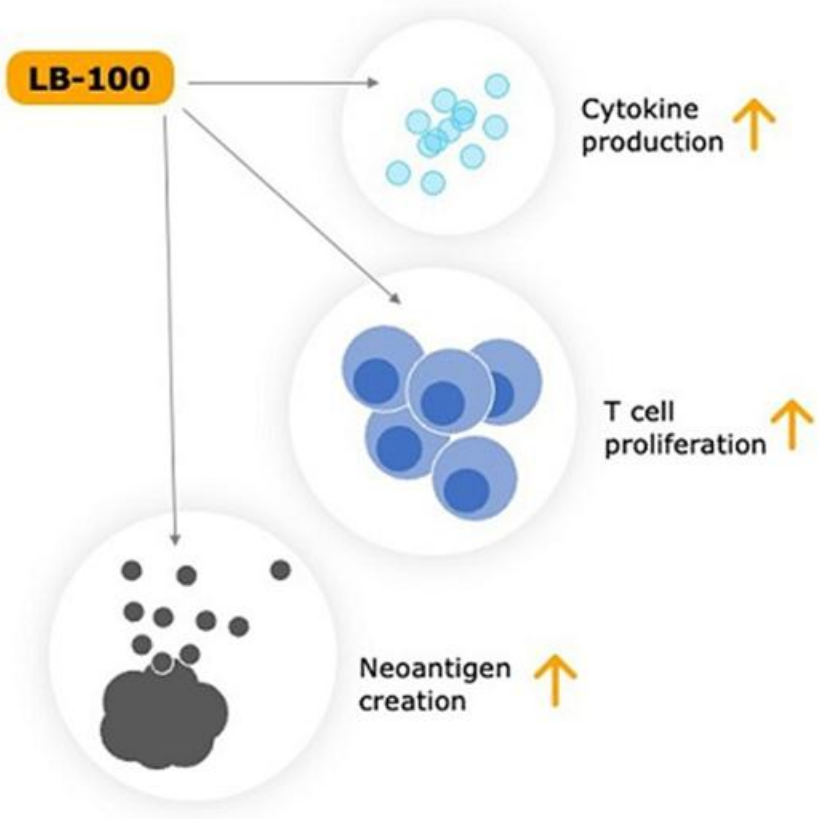
Description of Business

Most cancer patients are treated with either chemotherapy or immunotherapy or both. These therapies often have limited benefit and there is a high unmet medical need to enhance their effects. In many preclinical models we have shown that LB-100 enhances the effect of both chemotherapy and Immunotherapy

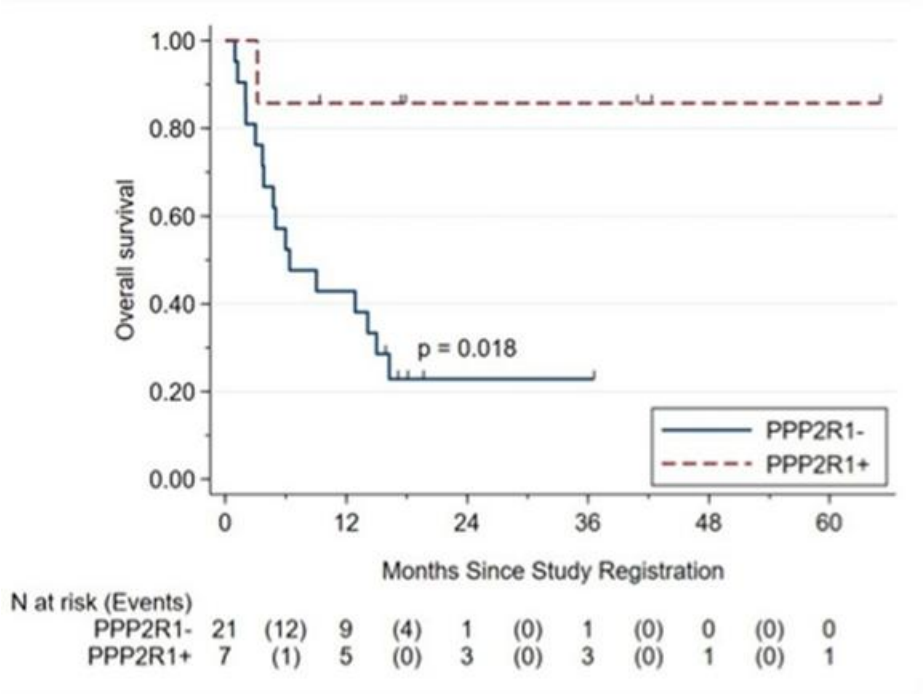
LB-100, a small molecule potent inhibitor of PP2A, was designed and developed by us. Numerous preclinical studies have documented that LB-100 potentiates most if not all anti-cancer drugs that damage DNA. LB-100 is not associated with any increase in cytotoxicity when given with cytotoxic drugs. This synergy involves transient interruption of several DNA damage repair pathways by LB-100 and an increase in cell division rate. LB-100 has FDA Investigational New Drug status in the US and Investigational Medicinal Product Dossier approval in the European Union.

In its initial Phase 1 clinical trial, LB-100 given alone daily for 3 days was non-toxic, except for a transient increase in serum creatinine believed to be caused by inhibition of PP2A in the renal tubules. In the Phase 1 clinical trial, the Maximum Tolerated Dose ("MTD") was 2.33mg/m2 daily for 3 days every 3 weeks. Of the 25 patients with heavily-treated advanced solid tumors with measurable disease, 3 patients had stable disease for 2 cycles, 3 patients had stable disease for 4 cycles, and 3 patients had stable disease for 6 cycles. One patient with pancreatic cancer had a partial response after 12 cycles lasting 534 days.

Low doses of LB-100 have now been shown to enhance immune checkpoint inhibition ("ICI") by several different mechanisms affecting the tumor compartment and immune T-cell compartment. LB-100 increases CD8+T-cell infiltration and CD8-Treg ratio, CD8+T-cell proliferation, and cytokine production induces microsatellite instability, neoantigen production and immune responsiveness, converting immunologically "cold" to "hot" cancers.



Ovarian clear cell carcinoma patients with inactivating mutations in PPP2R1A, a gene coding for a scaffold component of PP2A, and treated with immune checkpoint inhibitors, were recently found to have markedly longer survival than patients without the mutation in their cancers. Retrospective reviews of patients with a variety of cancers treated with ICI or chemotherapy show much longer survival of ICI-treated patients with a PPP2R1A mutation in their tumors.



Based on the observations in ovarian clear cell carcinoma, we have initiated a clinical trial in this disease combining LB-100 with a monoclonal antibody blocking PD-1, a protein found on T-cells (NCT06065462).

Given these preclinical and clinical observations, it is likely that LB-100 may be a general way to enhance immunotherapy responses.

		Pre-Clinical	Phase 1b	Phase 2	Phase 3	Status
LB-100 + Immunotherapy	Ovarian Clear Cell Cancer	NCT06065462				Actively Recruiting at MD Anderson And Northwestern. GSK sponsored
LB-100 + Immunotherapy	Metastatic MSI Low Colon Cancer	NCT06012734				Open at Netherlands Cancer Institute Roche sponsored.
LB-100 + Chemotherapy	Advanced Soft Tissue Sarcoma (ASTS)	NCT05809830				Completed dose escalation phase. Full report Phase 1 mid 2025

The research on the LB-100 series was initiated in 2006 under a Cooperative Research and Development Agreement ("CRADA") with the National Institute of Neurologic Disorders and Stroke or NINDS of the National Institutes of Health or NIH dated March 22, 2006 that was subsequently extended through a series of amendments until it terminated on April 1, 2013.

We have also designed and developed the LB-200 series, which consists of histone deacetylase inhibitors (HDACi). LB-200 has not advanced to the clinical stage and would require additional capital to fund further development. Accordingly, because of our focus on the clinical development of LB-100 and analogs for cancer therapy as described below in more detail, we have decided not to actively pursue the preclinical development of our LB-200 series of compounds at this time.

Clinical Trial Agreements

Spanish Sarcoma Group Collaboration Agreement

Effective July 31, 2019, we entered into a Collaboration Agreement for an Investigator-Initiated Clinical Trial with the Spanish Sarcoma Group (Grupo Español de Investigación en Sarcomas or "GEIS"), Madrid, Spain, to carry out a study entitled "Randomized phase I/II trial of LB-100 plus doxorubicin vs. doxorubicin alone in first line of advanced soft tissue sarcoma". The purpose of this clinical trial is to obtain information with respect to the efficacy and safety of LB-100 combined with doxorubicin in soft tissue sarcomas. Doxorubicin is the global standard for initial treatment of advanced soft tissue sarcomas ("ASTS"). Doxorubicin alone has been the mainstay of first line treatment of ASTS for over 40 years, with little improvement in survival from adding cytotoxic compounds to or substituting other cytotoxic compounds for doxorubicin. In animal models, LB-100 consistently enhances the anti-tumor activity of doxorubicin without apparent increases in toxicity.

GEIS has a network of referral centers in Spain and across Europe that have an impressive track record of efficiently conducting innovative studies in ASTS. We agreed to provide GEIS with a supply of LB-100 to be utilized in the conduct of this clinical trial, as well as to provide funding for the clinical trial. The goal is to enter approximately 150 to 170 patients in this clinical trial over a period of two to four years. The Phase 1 portion of the study began in the quarter ended June 30, 2023 to determine the recommended Phase 2 dose of the combination of doxorubicin and LB-100. As advanced sarcoma is a very aggressive disease, the design of the Phase 2 portion of the study assumes a median progression-free survival ("PFS"), no evidence of disease progression or death from any cause) of 4.5 months in the doxorubicin arm and an alternative median PFS of 7.5 months in the doxorubicin plus LB-100 arm to demonstrate a statistically significant decrease in relative risk of progression or death by adding LB-100. There is a planned interim analysis of the primary endpoint when approximately 50% of the 102 events required for final analysis is reached.

On October 13, 2022, we announced that the Spanish Agency for Medicines and Health Products (Agencia Española de Medicamentos y Productos Sanitarios or "AEMPS") had authorized a Phase 1b/randomized Phase 2 study of LB-100, our lead clinical compound, plus doxorubicin, versus doxorubicin alone, the global standard for initial treatment of advanced soft tissue sarcomas (ASTS). Consequently, this clinical trial commenced during the quarter ended June 30, 2023 and to be completed and a report prepared by December 31, 2026. In April 2023, GEIS completed its first site initiation visit in preparation for the clinical trial at Fundación Jiménez Díaz University Hospital (Madrid). Up to 170 patents will be entered into the clinical trial. The recruitment phase of the Phase 1b portion of the protocol was completed during the quarter ended September 30, 2024. We expect to have data on toxicity and preliminary efficacy from this portion of the clinical trial during the quarter ending December 31, 2025.

Given the focus on the combination of LB-100 with immunotherapy in ovarian clear cell carcinoma and colorectal cancer and the availability of capital resources, we entered into Amendment No. 1 to the Collaboration Agreement effective March 11, 2025 that relieved us of the financial obligation to support the randomized Phase 2 portion of the clinical trial contemplated in the Collaboration Agreement of approximately $3,095,000. As a result, it is uncertain as to whether the Phase 2 portion of this clinical trial will proceed.

Clinical Research Support Agreement Relating to Small Cell Lung Cancer

We had executed a Clinical Research Support Agreement with the City of Hope National Medical Center to carry out a Phase 1b clinical trial of LB-100 combined with an FDA-approved standard regiment for treatment of untreated extensive-stage disease small cell lung cancer. The clinical trial was initiated on March 9, 2021. However, due to the lack of patient accrual, the Company provided notice to the City of Hope National Medical Center of our intent to terminate the Clinical Research Support Agreement effective as of July 8, 2024.

MD Anderson Cancer Center Clinical Trial

On September 20, 2023, we announced an investigator-initiated Phase 1b/2 collaborative clinical trial to assess whether adding LB-100 to a human programmed death receptor-1 ("PD-1") blocking antibody of GSK plc ("GSK"), dostarlimab-gxly, may enhance the effectiveness of immunotherapy in the treatment of ovarian clear cell carcinoma ("OCCC"). The clinical trial is being sponsored by The University of Texas MD Anderson Cancer Center ("MD Anderson") and is being conducted at The University of Texas – MD Anderson Cancer Center. We are providing LB-100 and GSK is providing dostarlimab-gxly and financial support for the clinical trial. On January 29, 2024, we announced the entry of the first patient into this clinical trial. We currently expect that this clinical trial will be completed by December 31, 2027.

On February 25, 2025, we announced that we had added the Robert H. Lurie Comprehensive Cancer Center (Lurie Cancer Center) of Northwestern University as a second site in a clinical trial combining the Company's proprietary compound LB-100 with GSK's dostarlimab to treat ovarian clear cell cancer. Patient recruitment is underway, and the first patient has been dosed.

Netherlands Cancer Institute Clinical Trial

Effective June 10, 2024, we entered into a Clinical Trial Agreement with the Netherlands Cancer Institute ("NKI") to conduct a Phase 1b clinical trial of the Company's protein phosphatase inhibitor, LB-100, combined with atezolizumab, a PD-L1 inhibitor, the proprietary molecule of F. Hoffman-La Roche Ltd. ("Roche"), for patients with microsatellite stable metastatic colon cancer. Under the agreement, we will provide our lead clinical compound, LB-100, and under a separate agreement between NKI and Roche, Roche will provide atezolizumab and financial support for the clinical trial. We have no obligation to and will not provide any reimbursement of clinical trial costs. Pursuant to the agreement and the protocol set forth in the agreement, the clinical trial will be conducted by NKI at NKI's site in Amsterdam by principal investigator Neeltje Steeghs, MD, PhD, and NKI will be responsible for the recruitment of patients. The agreement provides for the protection of the respective intellectual property rights of each of Lixte, NKI and Roche.

This Phase 1b clinical trial will evaluate safety, optimal dose and preliminary efficacy of LB-100 combined with atezolizumab for the treatment of patients with metastatic microsatellite stable colorectal cancer. Immunotherapy using monoclonal antibodies like atezolizumab can enhance the body's immune response against cancer and hinder tumor growth and spread. LB-100 has been found to improve the effectiveness of anticancer drugs in killing cancer cells by inhibiting a protein called PP2A on cell surfaces. Blocking PP2A increases stress signals in tumor cells expressing the PP2A protein. Accordingly, combining atezolizumab with LB-100 may enhance treatment efficacy for metastatic colorectal cancer, as cancer cells with heightened stress signals are more vulnerable to immunotherapy.

This study comprises a dose escalation phase and a dose expansion phase. The objective of the dose escalation phase is to determine the recommended Phase 2 dose (RP2D) of LB-100 when combined with the standard dosage of atezolizumab. The dose expansion phase will further investigate the preliminary efficacy, safety, tolerability, and pharmacokinetics/dynamics of the LB-100 and atezolizumab combination. The clinical trial opened in August 2024 with the enrollment of the first patient. Patient accrual is expected to take up to 24 months, with a maximum of 37 patients with advanced colorectal cancer to be enrolled in this study.

The shelf life of the batch of LB-100 being utilized in this clinical trial was scheduled to expire on December 25, 2025, but has been extended for a final time for a period of 12 months through December 25, 2026, after which date no new patients can be recruited into this clinical trial and no patients can be treated with the current batch of LB-100. Although we do not currently intend to commission the production of a new batch of LB-100 for this clinical trial, we believe that it is likely that we will be able to recruit enough patients in sufficient time into this clinical trial to be able to reach an evaluable outcome for all end points in this clinical trial by December 25, 2026. The expiration of the shelf life of this batch of LB-100 represents an effective termination date of this clinical trial.

The principal investigator of the colorectal study testing LB-100 in combination with atezolizumab is currently investigating two Serious Adverse Events ("SAEs") observed in the clinical trial that was launched in August 2024. The Investigational Review Board (IRB) of the Netherlands Cancer Institute has requested additional information with respect to these SAEs and the study has been paused for enrollment until the IRB's questions have been, as more fully discussed below at "Risks Related to the Development and Regulatory Approval of Our Product Candidates - *A clinical trial hold due to serious adverse events could delay or halt the development of our product candidate".*

National Cancer Institute Pharmacologic Clinical Trial

In May 2019, the National Cancer Institute (NCI) initiated a glioblastoma (GBM) pharmacologic clinical trial. This study was being conducted and funded by the NCI under a Cooperative Research and Development Agreement, with the Company being required to provide the LB-100 clinical compound.

Primary malignant brain tumors (gliomas) are very challenging to treat. Radiation combined with the chemotherapeutic drug temozolomide has been the mainstay of therapy of the most aggressive gliomas (glioblastoma multiforme or GBM) for decades, with little further benefit gained by the addition of one or more anti-cancer drugs, but without major advances in overall survival for the majority of patients. In animal models of GBM, the Company's novel protein phosphatase inhibitor, LB-100, has been found to enhance the effectiveness of radiation, temozolomide chemotherapy treatments and immunotherapy, raising the possibility that LB-100 may improve outcomes of standard GBM treatment in the clinic. Although LB-100 has proven safe in patients at doses associated with apparent anti-tumor activity against several human cancers arising outside the brain, the ability of LB-100 to penetrate tumor tissue arising in the brain was not known. Many drugs potentially useful for GBM treatment do not enter the brain in amounts necessary for anti-cancer action.

The NCI study was designed to determine the extent to which LB-100 enters recurrent malignant gliomas. Patients having surgery to remove one or more tumors received one dose of LB-100 prior to surgery and had blood and tumor tissue analyzed to determine the amount of LB-100 present and to determine whether the cells in the tumors showed the biochemical changes expected to be present if LB-100 reached its molecular target. As a result of the innovative design of the NCI study, it was believed that data from a few patients would be sufficient to provide a sound rationale for conducting a larger clinical trial to determine the effectiveness of adding LB-100 to the standard treatment regimen for GBMs. Blood and brain tumor tissue were analyzed from seven patients after intravenous infusion of a single dose of LB-100. Results of the investigation demonstrated that there was virtually no entry of LB-100 into the brain tumor tissue. Accordingly, alternative methods of drug delivery will be required to determine if LB-100 has meaningful clinical anti-cancer activity against glioblastoma multiforme and other aggressive brain tumors.

Patent and License Agreements

National Institute of Health

Effective February 23, 2024, we entered into a Patent License Agreement (the "License Agreement") with the National Institute of Neurological Disorders and Stroke ("NINDS") and the National Cancer Institute ("NCI"), each an institute or center of the National Institute of Health ("NIH"). Pursuant to the License Agreement, we have licensed exclusively NIH's intellectual property rights claimed for a Cooperative Research and Development Agreement ("CRADA") subject invention co-developed with the Company, and the licensed field of use, which focuses on promoting anti-cancer activity alone, or in combination with standard anti-cancer drugs. The scope of this clinical research extends to checkpoint inhibitors, immunotherapy, and radiation for the treatment of cancer. The License Agreement is effective, and shall extend, on a licensed product, licensed process, and country basis, until the expiration of the last-to-expire valid claim of the jointly owned licensed patent rights in each such country in the licensed territory, unless sooner terminated.

The License Agreement contemplates that we will seek to work with pharmaceutical companies and clinical trial sites (including comprehensive cancer centers) to initiate clinical trials within timeframes that will meet certain benchmarks. Data from the clinical trials will be the subject of various regulatory filings for marketing approval in applicable countries in the licensed territories. Subject to the receipt of marketing approval, we would be expected to commercialize the licensed products in markets where regulatory approval has been obtained.

Other Significant Agreements and Contracts

Netherlands Cancer Institute

On October 8, 2021, we entered into a Development Collaboration Agreement with the Netherlands Cancer Institute, Amsterdam ("NKI"), one of the world's leading comprehensive cancer centers, and Oncode Institute, Utrecht, a major independent cancer research center, for a term of three years. The Development Collaboration Agreement was subsequently modified by Amendment No. 1 thereto.

The Development Collaboration Agreement is a preclinical study intended to identify the most promising drugs to be combined with LB-100, and potentially LB-100 analogues, to be used to treat a range of cancers, as well as to identify the specific molecular mechanisms underlying the identified combinations. We agreed to fund the preclinical study, at an approximate cost of 391,000 Euros and provide a sufficient supply of LB-100 to conduct the preclinical study.

On October 3, 2023, we entered into Amendment No. 2 to the Development Collaboration Agreement with NKI, which provides for additional research activities, extends the termination date of the Development Collaboration Agreement by two years to October 8, 2026, and added 500,000 Euros to the operating budget being funded by us.

On October 4, 2024, we entered into Amendment No. 3 to the Development Collaboration Agreement with NKI, which suspended Amendment No. 2 and provided for a new study term of one year and starts upon the dosing of the first patient in the clinical trial at a project cost of 100,000 Euros.

Effective as of June 15, 2022, Dr. René Bernards was appointed to our Board of Directors as an independent director. Dr. Bernards is a leader in the field of molecular carcinogenesis and is employed by NKI.

Intellectual Property

Our intellectual property includes proprietary know-how, proprietary methodologies and extensive clinical validation data and publications. To provide legal protection of our intellectual property, we rely on a combination of patents, licenses, trade secrets, trademarks, confidentiality and non-disclosure clauses and agreements, and other forms of intellectual property protection to define and protect our rights to our products.

Our products are expected to be covered by our patents. These patents now cover sole rights to the composition and synthesis of our LB-100 series of drugs, which is the Company's lead clinical compound in development. Lixte has filed patent applications covering the treatment of cancer with LB-100. Lixte has also filed joint patent applications with the NIH and the Netherlands Cancer Institute for the treatment of cancer using LB-100 in combination with other drugs like immune checkpoint inhibitors and WEE1 inhibitors (a class of drugs that target and inhibit the WEE1 kinase enzyme that plays a crucial role in regulating cell division).

Patent applications for the LB-100 series (oxabicycloheptanes and oxabicycloheptenes) have been filed in the United States and internationally under the Patent Cooperation Treaty. Patents for composition of matter and for several uses of the LB-100 series have been issued in the United States, Mexico, Australia, Japan, China, Hong Kong, Canada, and by the European Patent Office

We strive to protect and enhance the proprietary technology, inventions, and improvements that are commercially important to the development of our business, including seeking, maintaining, and defending its patent rights, which are owned solely by our wholly-owned Delaware subsidiary, Lixte Biotechnology, Inc., except in several instances jointly with one of many of our collaborators. We also rely on trade secrets relating to its proprietary pipeline of product candidates and on know-how and continuing technological innovation to develop and strengthen its pipeline. We intend to rely on regulatory protection afforded by regulatory agencies through data exclusivity, market exclusivity, and patent term extensions, where available.

Our success will depend in large part on its ability to obtain and maintain patent and other proprietary protection for commercially important technology, inventions and know-how related to its business; defend and enforce its patents; preserve the confidentiality of its trade secrets; and operate without infringing valid and enforceable patents or proprietary rights of third parties. Our ability to stop third parties from making, using, selling, offering to sell, or importing our technology may depend on the extent to which we have rights under valid and enforceable licenses, patents, or trade secrets that cover these activities. In some cases, enforcement of these rights may depend on cooperation of the joint owners of our jointly owned patents and patent applications.

With respect to both our solely and jointly owned intellectual property, we cannot be sure that patents will be granted on any of its pending patent applications or on any patent applications filed solely or jointly by us in the future; we cannot be sure that any of our existing patents or any patents that may be granted to us in the future will be commercially useful in protecting our intended commercial products or therapeutic methods; and we cannot be sure that an agency or court would determine that the our solely or jointly owned patents are valid and enforceable.

Nasdaq Compliance

On August 19, 2024, we received a letter from the Listing Qualifications Department (the "Staff") of the Nasdaq Stock Market LLC indicating that we were not in compliance with the minimum stockholders' equity requirement of $2,500,000 for continued listing on the Nasdaq Capital Market under Listing Rule 5550(b) (the "Equity Rule").

On October 3, 2024, we submitted a plan to the Staff to regain compliance with the Equity Rule, which outlined our proposed initiatives to regain compliance by raising equity capital through various registered equity offerings.

On October 21, 2024, the Staff provided notice to us that it had granted an extension through February 18, 2025 to regain compliance with the Equity Rule.

As of February 18, 2025, we had not regained compliance with the Equity Rule. Accordingly, on February 19, 2025, we received a Staff determination letter from the Staff stating that we did not meet the terms of the extension because we did not complete our proposed financing initiatives to regain compliance. We timely requested a Hearing before a Nasdaq Hearings Panel (the "Panel"), which automatically stayed Nasdaq's suspension or delisting of our Common Stock and public warrants pending the Panel's decision.

On April 17, 2025, we received notice that the Panel had granted us an extension in which to regain compliance with all continued listing rules of the Nasdaq Capital Market. The Panel's determination followed a hearing on April 3, 2025, at which time the Panel considered our plan to regain compliance with the Equity Rule. As a result of the extension, the Panel granted our request for continued listing on the Nasdaq Capital Market, provided that we demonstrate compliance with the Equity Rule and all other continued listing requirements for the Nasdaq Capital Market by July 3, 2025.

This offering is being conducted in order for us to satisfy the decision of the Panel and to provide the working capital resources to fund our operations. However, there can be no assurances that the Panel will deem the proceeds from this offering as sufficient to comply with the Equity Rule and all other continued listing requirements for the Nasdaq Capital Market. Accordingly, even if we complete this offering, there can be no assurances that we will be able to regain compliance during the extension period and thus be able to maintain our listing on the Nasdaq Capital Market.

During the extension period, our Common Stock and public warrants will continue to trade on the Nasdaq Capital Market.

Corporate Information

We were incorporated as a Delaware Corporation on May 24, 2005 under the name SRKP7, Inc. On June 30, 2006, pursuant to a share exchange agreement, we acquired all of the outstanding shares of Lixte Biotechnology, Inc. which then became a wholly owned subsidiary. On December 7, 2006, we changed our name to Lixte Biotechnology Holdings, Inc.

Effective September 26, 2023, Bastiaan van der Baan, a director of the Company since June 17, 2022, replaced our founder, John S. Kovach, as President and Chief Executive Officer. Dr. Kovach passed away on October 5, 2023. Effective October 6, 2023, Mr. van der Baan was appointed as Chairman of the Board of Directors.

As discussed below, effective June 16, 2025, Mr. van der Baan resigned as Chairman of the Board of Directors and Chief Executive Officer, but remained as President and as a member of the Board of Directors, and was appointed as the Company's Chief Scientific Officer, and Geordan Pursglove was appointed as Chairman of the Board of Directors and Chief Executive Officer.

Our common stock and public warrants are traded on the Nasdaq Capital Market under the symbols "LIXT" and "LIXTW", respectively. On June 2, 2023, we effected a one-for-ten reverse split of our outstanding shares of common stock in order to remain in compliance with the $1.00 minimum closing bid price requirement of the Nasdaq Capital Market.

Our principal address is 680 East Colorado Boulevard, Suite 180, Pasadena, CA 91101. Our telephone number is (631) 830-7092. We maintain a website at https://lixte.com. The information contained on our website is not, and should not be interpreted to be, incorporated into this prospectus.

July 2023 Financing

On July 20, 2023, we sold 583,334 shares of common stock at a price of $6.00 per share to an institutional investor and raised gross proceeds of approximately $3,500,000. As part of this financing, we sold warrants to the institutional investor to purchase 583,334 shares of common stock (the "2023 Warrants"). The 2023 Warrants had an initial exercise price of $6.00 per share, were immediately exercisable upon issuance, and expire five years thereafter on July 20, 2028. We also issued warrants to the placement agent to purchase 35,000 shares of common stock at an exercise price of $6.60 per share and expiring on July 20, 2028 (the "2023 Placement Agent Warrants").

The exercise prices of the warrants issued to the institutional investor and to the placement agent are subject to customary adjustments for stock splits, stock dividends, stock combinations, reclassifications, reorganizations, or similar events affecting our common stock. In addition, the warrants issued to the institutional investor contain a "fundamental transaction" provision whereby in the event of a fundamental transaction (including a sale or transfer of assets or ownership of the Company as defined in the warrant agreement) within our control, the holder of the unexercised common stock warrants would be entitled to receive, in exchange for extinguishment of the warrants, cash consideration equal to a Black-Scholes valuation, as defined in the warrant agreement. If such fundamental transaction is not within our control, the warrant holder would only be entitled to receive the same form of consideration (and in the same proportion) as the holders of our common stock.

Accordingly, in the event of a change in control of the Company or a sale or transfer of all or substantially all of our assets, as defined in the 2023 Warrants, to the extent that the warrants issued to the institutional investor are outstanding at the effective date that such a transaction is closed, this "fundamental transaction" provision would entitle the holder to substantial cash consideration, thus reducing the amounts to be retained by us or potentially distributable to our stockholders.

February 2025 Financing

On February 11, 2025, we entered into a Securities Purchase Agreement (the "Purchase Agreement") with two institutional investors (the "Selling Stockholders"). Pursuant to the Purchase Agreement, on February 13, 2025, we sold 434,784 shares of common stock at a price of $2.415 per share and raised gross proceeds of approximately $1,050,000. As part of this financing, we sold warrants to the institutional investors to purchase 434,784 shares of common stock (the "2025 Warrants"). Such Warrants had an initial exercise price of $2.29 per share, were immediately exercisable upon issuance, and expire five years thereafter on February 12, 2030. We also issued warrants to the placement agent to purchase 32,609 shares of common stock at an exercise price of $3.0188 per share and expiring on February 12, 2030 (the "2025 Placement Agent Warrants").

The exercise prices of the warrants issued to the institutional investors and to the placement agent are subject to customary adjustments for stock splits, stock dividends, stock combinations, reclassifications, reorganizations, or similar events affecting our common stock. In addition, the warrants issued to the institutional investors contain a "fundamental transaction" provision whereby in the event of a fundamental transaction (including a sale or transfer of assets or ownership of the Company as defined in the warrant agreement) within our control, the holders of the unexercised common stock warrants would be entitled to receive, in exchange for extinguishment of the warrants, cash consideration equal to a Black-Scholes valuation, as defined in the warrant agreement. If such fundamental transaction is not within our control, the warrant holders would only be entitled to receive the same form of consideration (and in the same proportion) as the holders of our common stock.

Accordingly, in the event of a change in control of the Company or a sale or transfer of all or substantially all of our assets, as defined in the 2025 Warrants, to the extent that the warrants issued to the institutional investors are outstanding at the effective date that such a transaction is closed, this "fundamental transaction" provision would entitle the holders to substantial cash consideration, thus reducing the amounts to be retained by us or potentially distributable to our stockholders.

Executive Management and Director Changes

Prior to and effective as of the consummation of this public offering, there will be several changes with respect to our executive management and the Board of Directors as described herein.

Bastiaan van der Baan. Effective June 16, 2025, Bastiaan van der Baan resigned as Chairman of the Board of Directors and as Chief Executive Officer, but remained as President and as a member of the Board of Directors, and was appointed as Chief Scientific Officer. Mr. van der Baan's principal responsibility as President will be related to the clinical development of our LB-100 lead compound. His responsibility as Chief Scientific Officer (CSO) will be for shaping and executing the scientific vision and research and development strategy of the Company, with a focus on discovering and developing innovative cancer therapeutics. The CSO leads all research functions, oversees preclinical and translational programs, supervises the Chief Medical Officer, and ensures alignment with clinical and regulatory development goals. The CSO provides scientific leadership to internal teams and external partners, supports fundraising and business development, and serves as a key member of executive management.

In conjunction with such resignation, the stock option that Mr. van der Baan was previously granted on September 26, 2023 to acquire 250,000 shares of common stock was deemed fully vested effective with Mr. van der Baan's resignation as described herein, and the time period for Mr. van der Baan to exercise his stock option at any time in the future that he is no longer providing his services to the Company as a consultant, employee or otherwise was increased from ninety (90) days to one (1) year.

Except for the previously described changes in Mr. van der Baan's management duties and the modifications to the terms of the stock option, Mr. van der Baan's three (3) year employment agreement dated September 26, 2023 will remain in full force and effect.

If the Company does not complete a successful financing that enables it to maintain its listing on the Nasdaq Small Cap Market by July 3, 2025, the amendment to Mr. van der Baan's employment agreement as described herein will be automatically terminated retroactive to the amendment date and Mr. van der Baan will be reinstated as Chairman of the Board of Directors and Chief Executive Officer.

Geordan Pursglove. Effective June 16, 2025, Geordan Pursglove was appointed as our new Chairman of the Board of Directors and Chief Executive Officer. His responsibilities include the oversight of our business operations and strategic planning, and he will be the primary contact between our executive team and the Board of Directors. He will also be the principal spokesperson of the Company and have final say on all corporate matters, subject only to the authority of the Board of Directors.

We have entered into an employment agreement with Mr. Pursglove for a term of three (3) years effective June 16, 2025. Mr. Pursglove will receive an annual salary of $240,000 which may be increased from time to time in the sole discretion of the Board of Directors. At his election, his compensation will be payable in cash and/or restricted shares, or a combination thereof.. He is also eligible to receive an annual bonus as determined in the sole discretion of the Board of Directors in the form of cash or equity, or a combination thereof. Mr. Pursglove will not receive any additional compensation for serving as the Chairman of the Board of Directors of the Company.

Effective as of the end of the first trading day for the Company's common stock immediately following the consummation of this offering, as an inducement to Mr. Pursglove to join our Company, as a signing bonus, he will be granted a stock option to purchase 350,000 shares of our common stock at an exercise price equal to the closing price on the Nasdaq Stock Market on such date, which shall be exercisable for a term of five (5) years, shall provide for cashless exercise, and shall vest 50% on the grant date, 25% on September 30, 2025, and 25% on December 31, 2025, subject to continued service.

The stock option grant will not be issued under the Company's 2020 Stock Incentive Plan. The stock option agreement will provide for certain registration rights (including on Form S-8) and for accelerated vesting upon the occurrence of certain events, including early termination of the employment agreement that is not the result of the voluntary termination, gross negligence or willful misconduct of Mr. Pursglove, a sale or change in control of the Company, or a sale, licensing or other disposition of all or substantially all of the assets of the Company, as defined in such stock option agreement.

If the Company does not complete a successful financing that enables it to maintain its listing on the Nasdaq Capital Market by July 3, 2025, the employment agreement with Mr. Pursglove as described herein will be deemed automatically terminated retroactively as of June 16, 2025 and the stock option grant will be cancelled, and Mr. Pursglove will promptly resign from the Board of Directors. In such event, Mr. van der Baan will be reinstated as Chairman of the Board of Directors and Chief Executive Officer.

Prior to joining the Company, Mr. Pursglove served as President, Chief Executive Officer and Chairman of the Board of Directors at Beyond Commerce, Inc. He was also President of Service 800, Inc., a leading phone and online customer satisfaction survey service that provides the most actionable customer feedback, to the most recognizable Fortune 500 companies globally, in which he led operations, scaled revenue, and oversaw the company's strategic vision. Mr. Pursglove held a board position at SemiCab Holdings, an emerging leader in the global logistics and distribution industry that was part of Algorhythm Holdings (NASDAQ: RIME). Currently Mr. Pursglove serves as the managing director of The 2GP Group LLC. During his time as the Managing Director of The 2GP Group, Mr. Pursglove has built multiple businesses in Sports, Sales, Marketing and Logistics. Mr. Pursglove has over a decade of experience in M&A, public markets space, capital raising, funding, growth, scaling businesses and driving innovation.

Peter Stazzone. Effective upon the closing of the public offering, Peter Stazzone will be appointed as a member of the Board of Directors and as the Chair of the Audit Committee, replacing Regina Brown, the current Chair of the Audit Committee, who will resign from the Board of Directors effective upon Mr. Stazzone's appointment. Mr. Stazzone is a senior finance and business development executive with over 20 years of experience in finance and operations management within start-ups, high-growth and multi-billion dollar organizations. Mr. Stazzone is an experienced board member in both the public and non-profit sectors. He earned his Master of Business Administration (Finance) from DePaul University and his Bachelor of Science (Accounting) from the University of Illinois. He also is a member of the American Institute of Certified Public Accountants. From 2021 to the present, Mr. Stazzone has acted as the Chief Financial Officer of Beyond Commerce, Inc., a publicly traded company operating in the Business-to-Business Internet Marketing Technology and Services, electric vehicles and logistics markets. From 2016 to 2021, Mr. Stazzone was the Chief Financial Officer of Strainz, Inc., a leading cannabis brand and manufacturing company operating in Colorado, Washington, and Nevada.

THE OFFERING

Issuer:	Lixte Biotechnology Holdings, Inc.

Securities offered by us:	5,263,158 shares of Common Stock We are also offering to investors in shares of Common Stock that would otherwise result in the investor's beneficial ownership exceeding 4.99% (or, at the election of the purchaser, 9.99%) of our outstanding shares of common stock immediately following the consummation of this offering the opportunity to purchase Pre-Funded Warrants in lieu of Common Stock. Each Pre-Funded Warrant consists of one pre-funded warrant ("Pre-Funded Warrant") to purchase one share of our common stock. The purchase price of each Pre-Funded Warrant is $1.13999 (which is equal to the assumed public offering price per share of Common Stock of $1.14 minus $0.00001). Subject to limited exceptions, a holder of Pre-Funded Warrants will not have the right to exercise any portion of its Pre-Funded Warrants if the holder, together with its affiliates, would beneficially own in excess of 4.99% (or, at the election of the holder, such limit may be increased to up to 9.99%) of the common stock outstanding immediately after giving effect to such exercise. The Pre-Funded Warrants will be immediately exercisable (subject to the beneficial ownership cap) and may be exercised at any time until all of the Pre-Funded Warrants are exercised in full. For each Pre-Funded Warrant purchased, the number of Common Stock we are offering will be decreased on a one-for-one basis. The Pre-Funded Warrants have no stand-alone rights and will not be certificated or issued as stand-alone securities.
Over-Allotment Option:	The offering is being underwritten on a firm commitment basis. We have granted the underwriter a 45-day option to purchase up to an additional 789,474 shares of Common Stock, representing 15% of the shares of Common Stock sold in the offering, at an assumed public offering price of $1.14 per share of Common Stock.
Underwriter Warrants:	We have also granted the underwriter five-year warrants to purchase up to 5.0% of the shares of Common Stock and Pre-Funded Warrants including in the over-allotment option at an exercise price of 125% of the offering price per share of Common Stock. The Underwriter Warrants may not be exercised, 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 such securities for a period of one hundred eighty (180) days beginning on the commencement of sales of the offering.
Assumed public offering price:	$1.14 per share of Common Stock, which is the closing price of our common stock on the Nasdaq Capital Market on June 13, 2025.
Common stock outstanding immediately prior to this offering:	2,756,991 shares of common stock.
Common stock to be outstanding immediately after this offering:	8,020,149 shares[(1)] of our common stock (or 8,809,623 shares of common stock if the over-allotment option is exercised in full) assuming no issuance of Pre-Funded Warrants, and no exercise of any of the Underwriter Warrants issued in this offering).
Use of proceeds:	We currently intend to use the net proceeds from this offering for working capital and general corporate purposes. See "Use of Proceeds".

Underwriting:	Spartan proposes to offer the shares of Common Stock purchased pursuant to the underwriting agreement between us and Spartan to the public at the public offering price set forth on the cover page of this prospectus. In addition, we will reimburse Spartan for certain out-of-pocket expenses, including legal fees, related to the offering up to a maximum of $125,000. See "Underwriting".
Nasdaq Capital Market trading symbol:	Our common stock currently trades on the Nasdaq Capital Market under the symbol "LIXT". We do not intend to list the Pre-Funded Warrants offered hereunder on any stock exchange.
Transfer agent and registrar:	The transfer agent and registrar for our common stock is Computershare Trust Company, N.A.
Risk factors:	The securities offered by this prospectus are speculative and involve a high degree of risk. Investors purchasing securities should not purchase the securities unless they can afford the loss of their entire investment. See "Risk Factors".

(1) Immediately after this offering, the Company will have 8,020,149 shares of common stock outstanding as set forth above, assuming that the underwriter over-allotment option is not exercised, and will exclude:

- 662,078 shares of common stock issuable upon the exercise of common stock options issued to members of management, consultants and directors at a weighted average exercise price of $11.526 per share;
- 1,275,758 shares of common stock issuable upon exercise of outstanding common stock warrants at an average exercise price of $11.254 per share of common stock, including 434,784 shares of common stock issuable upon exercise of 434,784 common stock warrants exercisable at $2.29 per share issued in our February 13, 2025 offering, 32,609 shares of common stock issuable upon exercise of 32,609 common stock warrants exercisable at $3.1088 per share issued to the placement agent in our February 13, 2025 offering, and 149,700 shares of common stock issuable upon exercise of 149,700 publicly traded warrants at $57.00 per share of common stock through November 30, 2025;
- 133,339 shares of common stock reserved for future grants pursuant to our 2020 Stock Incentive Plan, as amended (the "2020 Plan"); and
- 263,158 shares of common stock issuable upon exercise of the Underwriter Warrants at an exercise price of $1.425 per share of common stock issuable to the underwriter in this offering, assuming that the over-allotment option is not exercised.

Unless otherwise indicated, this prospectus also assumes no sale of Pre-Funded Warrants, no exercise of any of the Underwriter Warrants, and no exercise of the underwriter over-allotment option.

RISK FACTORS

Investing in our common stock is highly speculative and involves a significant degree of risk. You should carefully consider the following risks and uncertainties as well as the risks and uncertainties described in the section entitled "Risk Factors" contained in our Annual Report on Form 10-K for the fiscal year ended December 31, 2024

and in our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2025, filed with the Securities and Exchange Commission, which filings are incorporated in this prospectus by reference in their entirety, as well as in any prospectus supplement hereto. These risk factors could materially and adversely affect our business, results of operations or financial condition. Our business faces significant risks and the risks described below or incorporated by reference herein may not be the only risks we face. Additional risks not presently known to us or that we currently believe are immaterial may materially affect our business, results of operations, or financial condition. If any of these risks occur, the trading price of our common stock could decline and you may lose all or part of your investment.

Risks Related to the Development and Regulatory Approval of Our Product Candidates

A clinical trial hold due to serious adverse events could delay or halt the development of our product candidate.

Our lead drug candidate, LB-100, is currently undergoing various clinical trials, and there is a risk that one or more of these trials could be placed on hold by regulatory authorities due to serious adverse events (SAEs) related to our drug candidate or to another company's drug used in combination in one of our clinical trials. It is possible that the SAEs could be attributable to our drug candidate and could include, but not be limited to, unexpected severe side effects, treatment-related deaths, or long-term health complications. A dose given could result in non-tolerable adverse events defined as dose-limiting toxicity (DLT). When two DLTs occur at the same dose-level that dose-level is considered too high and unsafe. Further treatment is only allowed at lower dose-levels that have previously been found safe.

If an SAE or a pattern of SAEs is observed during the course of a clinical trial involving our drug candidate, the U.S. Food and Drug Administration (FDA), European Medicines Agency (EMA), or other regulatory authorities may issue a clinical hold, requiring us to pause or discontinue further enrollment and dosing in our clinical trial. It is also possible that the clinical trial could be terminated. Any of these actions could delay or halt the development of our drug candidate, increase development costs, and negatively impact our ability to ultimately achieve regulatory approval. Additionally, if an SAE is confirmed to be drug-related, we may be required to conduct additional studies, modify the study design, or abandon further development of the drug candidate altogether, which could materially impact our business, financial condition, and prospects.

The occurrence of an SAE and any resulting clinical hold could also harm our reputation with patients, physicians, health institutions, and investors, diminish our ability to attract clinical trial participants, and damage our ability to interest investors and obtain financing in the future. There can be no assurances that we will not experience such SAEs in the future or that any related clinical hold will be lifted in a timely manner, or at all.

The principal investigator of the colorectal study testing LB-100 in combination with atezolizumab (Roche PD-L1 inhibitor) is currently investigating two SAEs observed in the clinical trial that was launched in August 2024. The Institutional Review Board (the "IRB") of the Netherlands Cancer Institute ("NKI") has put the colorectal cancer study on hold. The adverse reactions that developed in the two patients were dyspnea (shortness of breath) due to lung toxicity possibly or probably related to the combination of LB-100 and atezolizumab in one patient and fever and aphasia possibly or probably related to the combination of LB-100 and atezolizumab in the second patient. The patient who developed lung toxicity deceased due to the combination of lung metastases of colorectal cancer and dyspnea. The patient with fever and aphasia fully recovered from the adverse events with supportive medication.

Given the identified adverse events in the two patients in the clinical trial, the IRB requested from the principal investigator of the study at the NKI information as to whether the adverse events could have been caused by the combination of LB-100 and atezolizumab and information about the mode of action of the combination of LB-100 and atezolizumab. The principal investigator prepared a response to the IRB detailing the safety experience with LB-100 given alone and in combination with other cancer drugs, especially doxorubicin and dostarlimab. Doxorubicin is a well-known chemotherapy, and dostarlimab is a well-known immunotherapy of which the mode of action is closely related to that of atezolizumab.

The reported adverse events in the colorectal cancer study have not been seen in any other patients thus far treated with LB-100 alone or in combination with other cancer drugs. Through May 2025, the Company has been informed that a total of 79 patients had received or were receiving experimental treatment with LB-100.

In May 2025, the Company updated the safety overview of LB-100 and delivered the updated version 5.0 of the Investigator's Brochure (the "IB"), which contains all of the relevant preclinical, clinical and pharmacologic data with respect to the study of the LB-100 clinical compound in humans, to the investigators of all ongoing clinical trials. The investigators of the study in colorectal cancer (NCT06012734) submitted a detailed response to the IRB, including the updated IB. The Company is currently awaiting the outcome of the IRB review.

Risks Related to this Offering and Ownership of our Securities

We have a history of losses, expect to continue to incur losses in the near term and may not achieve or sustain profitability in the future, and as a result, our management has identified, and our auditors agreed that there is a substantial doubt about our ability to continue as a going concern.

We have incurred significant losses since our inception. We experienced net losses of $3,585,965 and $5,087,029 for the years ended December 31, 2024 and 2023, respectively, and $709,555 and $971,322 for the three months ended March 31, 2025 and 2024, respectively. We expect our operating losses will continue, or even increase, at least through the near term. You should not rely upon our past results as indicative of future performance. We will not reach profitability in the near future or at any specific time in the future.

The report of our independent registered public accounting firm that accompanies our audited consolidated financial statements in our Annual Report on Form 10-K for the fiscal year ended December 31, 2024 contains an explanatory paragraph regarding substantial doubt about our ability to continue as a going concern. Our consolidated financial statements do not include any adjustments that might result if we are unable to continue as a going concern. If we are unable to continue as a going concern, holders of our securities might lose their entire investment.

We are currently not in compliance with the Nasdaq Capital Market's continued listing requirements. If we are unable to regain compliance with the Nasdaq Capital Market's listing requirements, our securities could be delisted, which could affect our common stock's market price and liquidity and reduce our ability to raise capital.

On August 19, 2024, we received a letter from the Listing Qualifications Department (the "Staff") of the Nasdaq Stock Market LLC indicating that we were not in compliance with the minimum stockholders' equity requirement of $2,500,000 for continued listing on the Nasdaq Capital Market under Listing Rule 5550(b) (the "Equity Rule").

On October 3, 2024, we submitted a plan to the Staff to regain compliance with the Equity Rule, which outlined our proposed initiatives to regain compliance by raising equity capital through various registered equity offerings.

On October 21, 2024, the Staff provided notice to us that it had granted an extension through February 18, 2025 to regain compliance with the Equity Rule.

As of February 18, 2025, we had not regained compliance with the Equity Rule. Accordingly, on February 19, 2025, we received a Staff determination letter from the Staff stating that we did not meet the terms of the extension because we did not complete our proposed financing initiatives to regain compliance. We timely requested a Hearing before a Nasdaq Hearings Panel (the "Panel"), which automatically stayed Nasdaq's suspension or delisting of our Common Stock and public warrants pending the Panel's decision.

On April 17, 2025, we received notice that the Panel had granted us an extension in which to regain compliance with all continued listing rules of the Nasdaq Capital

Market. The Panel's determination followed a hearing on April 3, 2025, at which time the Panel considered our plan to regain compliance with the Equity Rule. As a result of the extension, the Panel granted our request for continued listing on the Nasdaq Capital Market, provided that we demonstrate compliance with the Equity Rule and all other continued listing requirements for the Nasdaq Capital Market by July 3, 2025.

This offering is being conducted in order for us to satisfy the decision of the Panel and to provide the working capital resources to fund our operations. However, there can be no assurances that the Panel will deem the proceeds from this offering as sufficient to comply with the Equity Rule and all other continued listing requirements for the Nasdaq Capital Market. Accordingly, even if we complete this offering, there can be no assurances that we will be able to regain compliance during the extension period and thus be able to maintain our listing on the Nasdaq Capital Market.

During the extension period, our Common Stock and public warrants will continue to trade on the Nasdaq Capital Market.

We cannot assure you that we will be able to regain compliance with the Nasdaq Capital Market's listing standards. Our failure to continue to meet these requirements would result in our common stock being delisted from Nasdaq, and if our common stock is delisted, the warrants issued in our public offering would also be delisted. We and holders of our securities could be materially adversely impacted if our securities are delisted from the Nasdaq Capital Market. In particular:

- we may be unable to raise equity capital on acceptable terms or at all;
- we may lose the confidence of our clinical partners, which would jeopardize our ability to continue our clinical trials as currently conducted;
- the price of our common stock will likely decrease as a result of the loss of market efficiencies associated with the Nasdaq Capital Market and the loss of federal pre-emption of state securities laws;
- holders may be unable to sell or purchase our securities when they wish to do so;
- we may become subject to stockholder litigation;
- we may be unable to attract, or we may lose the interest of, institutional investors in our common stock;
- we may lose media and analyst coverage;
- our common stock could be considered a "penny stock", which would likely limit the level of trading activity in the secondary market for our common stock; and
- we would likely lose any active trading market for our common stock, as it may only be traded on one of the over-the-counter markets, if at all.

We will have to seek to raise additional funds to fund our operations, including the various clinical trials being currently conducted or will be conducted in the future. Depending on the terms available to us, if these fund raising activities result in significant dilution, they may negatively impact the trading price of our common stock.

Any additional financing that we secure may require the granting of rights, preferences or privileges senior to, o*pari passu* with, those of our common stock. Any issuances by us of equity securities may be at or below the prevailing market price of our common stock and in any event may have a dilutive impact on your ownership interest, which could cause the market price of our common stock to decline. We may also raise additional funds through the incurrence of debt or the issuance or sale of other securities or instruments senior to our shares of common stock, which may be highly dilutive. The holders of any securities or instruments we may issue may have rights superior to the rights of our common stockholders. If we experience dilution from the issuance of additional securities and we grant superior rights to new securities over holders of our common stock, it may negatively impact the trading price of our common stock and you may lose all or part of your investment.

As part of the Company's ongoing process of evaluating various alternatives to obtain the capital required to fund its operations and maintain its listing on the Nasdaq Capital Market, management may decide to consider a wide variety of strategic alternatives, and there can be no assurances that any such transaction, if implemented, would enhance stockholder value, and could be highly dilutive to existing stockholders.

The Company is evaluating various alternatives to obtain the capital required to fund its operations and maintain its listing on the Nasdaq Capital Market, including merger or acquisition opportunities (including reverse mergers) and funding transactions involving a change in control. There can be no assurances that the evaluation process will result in the identification of an appropriate transaction, the negotiation and execution of a definitive agreement to effect such a transaction, or that any such transaction will ultimately be approved by the Company's stockholders and then be consummated. Depending on various factors, many of which are outside the control of the Company, our failure to enter into and consummate a strategic transaction could have a material adverse effect on our ability to continue to operate and finance our business, and on the market price of our common stock. Even if such a strategic transaction is consummated, there can be no assurances that it will enhance stockholder value, and it may result in substantial dilution to existing stockholders. Any potential transaction would be dependent on a number of factors that may be outside of our control, including, among other things, market conditions, industry trends, the interest of third parties in a potential transaction with the Company, and the availability of appropriate financing for such a transaction. If we are unable to raise the required capital to fund our operations, or to enter into a strategic transaction in the near future, we may not be able to maintain our listing on the Nasdaq Capital Market, and we may need to curtail or cease operations, which could result in a total loss of stockholders' investment.

The price of our common stock might fluctuate substantially.

You should consider an investment in our common stock to be risky. Some factors that might cause the market price of our common stock or public warrants to fluctuate, in addition to the other risks mentioned in this "Risk Factors" section, are:

- sale of our common stock by our stockholders, executives, and directors and our stockholders;
- volatility and limitations in trading volumes of our shares of common stock;
- our ability to obtain financings to conduct and complete research and development activities including, but not limited to, our clinical trials, and other business activities;
- the timing and success of introductions of new products by us or our competitors or any other change in the competitive dynamics of our industry, including consolidation among competitors, customers or strategic partners;
- network outages or security breaches;
- our ability to secure resources and the necessary personnel to conduct clinical trials on our desired schedule;
- commencement, enrollment or results of our clinical trials for our lead product candidate or any future clinical trials we might conduct;
- changes in the development status of our lead product candidate;
- any delays or adverse developments or perceived adverse developments with respect to the FDA's review of our planned preclinical and clinical trials;

- any delay in our submission for studies or product approvals or adverse regulatory decisions, including failure to receive regulatory approval for our lead product candidate;
- unanticipated safety concerns related to the use of our lead product candidate;
- failures to meet external expectations or management guidance;
- changes in our capital structure or dividend policy, future issuances of securities, sales of large blocks of common stock by our stockholders;
- our cash position;

- announcements and events surrounding financing efforts, including debt and equity securities;
- our inability to enter into new markets or develop new products;
- reputational issues;
- competition from existing technologies and products or new technologies and products that might emerge;
- announcements of acquisitions, partnerships, collaborations, joint ventures, new products, capital commitments, or other events by us or our competitors;
- changes in general economic, political and market conditions in or any of the regions in which we conduct our business;
- changes in industry conditions or perceptions;
- changes in valuations of similar companies or groups of companies;
- analyst research reports, recommendations and changes in recommendations, price targets, and withdrawals of coverage;
- departures and additions of key personnel;
- disputes and litigations related to intellectual properties, proprietary rights, and contractual obligations;
- changes in applicable laws, rules, regulations, or accounting practices and other dynamics; and
- other events or factors, many of which might be out of our control.

In addition, if the market for stocks in our industry or industries related to our industry, or the stock market in general, experiences a loss of investor confidence, the trading price of our common stock could decline for reasons unrelated to our business, financial condition and results of operations. If any of the foregoing occurs, it could cause our stock price to fall and might expose us to lawsuits that, even if unsuccessful, could be costly to defend and a distraction to management.

Provisions of the Warrants issued in the 2023 Financing and 2025 Financing could discourage an acquisition of us by a third party.

Certain provisions of the 2023 Warrants and 2025 Warrants could make it more difficult or expensive for a third party to acquire us. Such Warrants prohibit us from engaging in certain transactions constituting "fundamental transactions" unless, among other things, the surviving entity assumes our obligations under such Warrants. These could prevent or deter a third party from acquiring us even where the acquisition could be beneficial to you. Also, we may be required to redeem these Warrants for a cash payment calculated pursuant to the Black-Scholes option-pricing model.

An active, liquid and orderly trading market for our common stock may not develop, the price of our stock may be volatile, and you could lose all or part of your investment.

Even though our common stock is currently listed on the Nasdaq Capital Market, we cannot predict the extent to which investor interest in our Company will lead to the development of an active trading market in our securities or how liquid that market might become. If such a market does not develop or is not sustained, it may be difficult for you to sell your shares of common stock at the time that you wish to sell them, at a price that is attractive to you, or at all. There could be extreme fluctuations in the price of our common stock if there are a limited number of shares in our public float.

The trading price of our common stock may be highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control. Our stock price could be subject to wide fluctuations in response to a variety of factors, which include:

- whether we achieve our anticipated corporate objectives;
- actual or anticipated fluctuations in our quarterly or annual operating results;
- changes in our financial or operational estimates;
- our ability to implement our operational plans;
- changes in the economic performance or market valuations of companies similar to ours; and
- general economic or political conditions in the United States or elsewhere.

In addition, broad market and industry factors may seriously affect the market price of companies' stock, including ours, regardless of actual operating performance. In the past, following periods of volatility in the overall market and the market price of a particular company's securities, securities class action litigation has often been instituted against these companies. This litigation, if instituted against us, could result in substantial costs and a diversion of our management's attention and resources.

Our outstanding Warrants may cause the trading price of our common stock to decrease.

Depending on the price of our common stock, the number of shares of common stock issuable pursuant to the exercise of the Warrants issued in the 2023 Financing and the 2025 Financing could result in an immediate decrease in the trading price of our common stock. If the bid price of our common stock falls below $1.00 per share for thirty (30) consecutive business days, we would no longer meet the Nasdaq Capital Market's minimum bid price requirement and our common stock would be subject to delisting. We cannot predict the effect, if any, that the availability of shares for future sale represented by such Warrants will have on the trading price of our common stock

from time to time.

If our shares of common stock become subject to the penny stock rules, it would become more difficult to trade our shares.

The Securities and Exchange Commission has adopted rules that regulate broker-dealer practices in connection with transactions in penny stocks. Penny stocks are generally equity securities with a price of less than $5.00, other than securities registered on certain national securities exchanges or authorized for quotation on certain automated quotation systems, provided that current price and volume information with respect to transactions in such securities is provided by the exchange or system. If we do not retain a listing on the Nasdaq Capital Market and if the price of our common stock is less than $5.00, our common stock will be deemed a penny stock. The penny stock rules require a broker-dealer, before a transaction in a penny stock not otherwise exempt from those rules, to deliver a standardized risk disclosure document containing specified information. In addition, the penny stock rules require that before effecting any transaction in a penny stock not otherwise exempt from those rules, a broker-dealer must make a special written determination that the penny stock is a suitable investment for the purchaser and receive (i) the purchaser's written acknowledgment of the receipt of a risk disclosure statement; (ii) a written agreement to transactions involving penny stocks; and (iii) a signed and dated copy of a written suitability statement. These disclosure requirements may have the effect of reducing the trading activity in the secondary market for our common stock, and therefore stockholders may have difficulty selling their shares.

If we were to dissolve, the holders of our securities may lose all or substantial amounts of their investments.

If we were to dissolve as a corporation, as part of ceasing to do business or otherwise, we will be required to pay all amounts owed to any creditors before distributing any assets to holders of our capital stock. There is a risk that in the event of such a dissolution, there will be insufficient funds to repay amounts owed to holders of any of our indebtedness and insufficient assets to distribute to our capital stockholders, in which case investors could lose their entire investment.

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

The trading market for our common stock is influenced by the research and reports that industry or securities analysts may publish about us, our business, our market or our competitors. If any of the analysts who may cover us change their recommendation regarding our common stock adversely, or provide more favorable relative recommendations about our competitors, our stock price would likely decline. If any of the analysts who may cover us were to cease coverage of our Company or fail 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.

In making your investment decision, you should understand that we have not authorized any other party to provide you with information concerning us or this offering.

You should carefully evaluate all of the information in this prospectus before investing in our company. We may receive media coverage regarding our company, including coverage that is not directly attributable to statements made by our officers, that incorrectly reports on statements made by our officers or employees, or that is misleading as a result of omitting information provided by us, our officers or employees. We and the underwriter have not authorized any other party to provide you with information concerning us or this offering, and you should not rely on unauthorized information in making an investment decision.

The common stock and Pre-Funded Warrants (which are exercisable for common stock) sold in this offering will increase the number of our shares of common stock from 2,756,991 shares to 8,020,149 shares. If the Underwriter's over-allotment option is exercised, the number of our shares of common stock will increase by an additional 789,474 shares. The sales of these securities could depress the market price of our shares of common stock and/or increase the volatility of our trading.

A substantial number of shares of common stock and Pre-Funded Warrants are being offered by this prospectus. Sales of a substantial number of our shares of common stock in the public markets pursuant to the terms of this offering could depress the market price of our shares of common stock and impair our ability to raise capital to the sale of additional equity securities. Additionally, such sales could also greatly increase the volatility associated with the trading of our common stock. We cannot predict the number of shares that might be sold, nor the effect future sales of shares would have on the market price of our shares.

The Pre-Funded Warrants are speculative in nature and there is not expected to be a trading market for the Pre-Funded Warrants.

There is no established trading market for the Pre-Funded Warrants and we do not expect a trading market to develop. Without a trading market, the liquidity of the Pre-Funded Warrants will be limited.

Holders of the Pre-Funded Warrants will have no rights as a common stockholder until they acquire our common stock.

The Pre-Funded Warrants offered in this offering do not confer any rights of common stock ownership on their holders, such as voting rights or the right to receive dividends, but rather merely represent the right to acquire shares of our common stock at a fixed price for a limited period of time. In the case of Pre-Funded Warrants, holders may exercise their right to acquire the common stock and pay an exercise price of $0.00001 per share. The Pre-Funded Warrants do not expire. Until holders of the Pre-Funded Warrants acquire shares of our common stock upon exercise of the Pre-Funded Warrants, the holders will have no rights with respect to shares of our common stock issuable upon exercise of the Pre-Funded Warrants. Upon exercise of the Pre-Funded Warrants, the holder will be entitled to exercise the rights of a common stockholder as to the security exercised only as to matters for which the record date occurs after the exercise.

Investors in this offering will experience immediate and substantial dilution in the book value of their investment.

The public offering price will be substantially higher than the net tangible book value per share of our outstanding shares of common stock. As a result, investors in this offering will incur immediate dilution of $[ ] per share based on the assumed public offering price of $[ ] per share of Common Stock. Investors in this offering will pay a price per share of Common Stock that substantially exceeds the book value of our assets after subtracting our liabilities. See "Dilution" for a more complete description of how the value of your investment will be diluted upon the completion of this offering.

A possible "short squeeze" due to a sudden increase in demand of our shares of common stock that largely exceeds supply may lead to price volatility in our shares of common stock.

Following this offering, investors may purchase our shares of common stock to hedge existing exposure in our shares of common stock or to speculate on the price of our shares of common stock. Speculation on the price of our shares of common stock may involve long and short exposures. To the extent aggregate short exposure exceeds the number of shares of our common stock available for purchase in the open market, investors with short exposure may have to pay a premium to repurchase our shares of common stock for delivery to lenders of our shares of common stock. Those repurchases may in turn, dramatically increase the price of our shares of common stock until investors with short exposure are able to purchase additional shares of Common Stock to cover their short position. This is often referred to as a "short squeeze". A short squeeze could lead to volatile price movements in our shares of common stock that are not directly correlated to the performance or prospects of our company and once investors purchase the shares of common stock necessary to cover their short position the price of our common stock may decline.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, and the documents incorporated by reference herein may contain 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 Securities Exchange Act of 1934, as amended (the "Exchange Act"). All statements other than statements of historical facts contained in this prospectus, including statements regarding our future results of operations and financial position, business strategy and plans and our objectives for future operations, are forward-looking statements. The words "anticipate", "believe", "could", "estimate", "expect", "forecast", "intend", "may", "plan", "potential", "should", "will", "would", "might", and similar expressions are intended to identify forward-looking statements. These forward-looking statements are subject to certain risks and uncertainties that could cause actual results to differ materially from historical results or anticipated results, including:

- We are engaged in early-stage research and as such might not be successful in our efforts to develop a portfolio of commercially viable products;
- We have incurred substantial losses since our inception and anticipate that we will continue to incur substantial and increasing losses for the foreseeable future;
- Our independent registered public accounting firm has expressed substantial doubt about our ability to continue as a going concern;
- We need significant additional financing to fund our operations and complete the development and, if approved, the commercialization of our lead product candidate, LB-100. If we are unable to raise capital when needed, we could be forced to delay, reduce or eliminate our product development programs or commercialization efforts;
- We currently have no source of revenues. We might never generate revenues or achieve profitability;
- Our ability to use net operating losses to offset future taxable income might be subject to limitations;
- Clinical-stage biopharmaceutical companies with product candidates in clinical development face a wide range of challenging activities which might entail substantial risk;
- We might find it difficult to enroll patients in our clinical trials which could delay or prevent the start of clinical trials for our product candidate;
- The results of preclinical studies or earlier clinical trials are not necessarily predictive of future results. Our lead product candidate in clinical trials, and any other product candidates that might advance into clinical trials, might not have favorable results in later clinical trials or receive regulatory approval;
- Clinical drug development involves a lengthy and expensive process with an uncertain outcome;
- There is a risk that one or more of our clinical trials could be placed on hold by regulatory authorities due to serious adverse events (SAEs) related to our drug candidate or to another company's drug used in combination in one of our clinical trials. It is possible that the SAEs could be attributable to our drug candidate and could include, but not be limited to, unexpected severe side effects, treatment-related deaths, or long-term health complications. A dose given could result in non-tolerable adverse events defined as dose-limiting toxicity (DLT). When two DLTs occur at the same dose-level that dose-level is considered too high and unsafe. Further treatment is only allowed at lower dose-levels that have previously been found safe.

- Risks associated with operating in foreign countries could materially adversely affect our product development;
- Our current and future product candidates, the methods used to deliver them or their dosage levels may cause undesirable side effects or have other properties that could delay or prevent their regulatory approval, limit the commercial profile of an approved label or result in significant negative consequences following any regulatory approval;
- Our product development program might not uncover all possible adverse events that patients who take our lead product candidate may experience. The number of subjects exposed to our lead product candidate and the average exposure time in the clinical development program might be inadequate to detect rare adverse events or chance findings that might only be detected once the product is administered to more patients and for greater periods of time;
- Our future success is dependent on the regulatory approval of our lead product candidate;
- Our lead product candidate and future product candidates could fail to receive regulatory approval from the FDA;
- Failure to obtain regulatory approval in international jurisdictions would prevent our lead product candidate from being marketed abroad;
- Even if our current primary product candidate receives regulatory approval, it might still face future development and regulatory difficulties;
- We depend on certain key scientific personnel for our success who do not work full time for us. The loss of any such personnel could adversely affect our business, financial condition and results of operations;
- We expect to rely heavily on third parties for the conduct of clinical trials of our product candidates. If these clinical trials are not successful, or if we or our collaborators are not able to obtain the necessary regulatory approvals, we will not be able to commercialize our product candidates;
- Business interruptions could adversely affect future operations, revenues, and financial conditions, and might increase our costs and expenses;
- Our failure to find third party collaborators to assist or share in the costs of product development could materially harm our business, financial condition or results of operations;
- We might be subject to claims by third parties asserting that our employees, consultants, collaborators contractors or we have misappropriated their intellectual property, or claiming ownership of what we regard as our own intellectual property;
- We cannot be certain we will be able to obtain patent protection to protect our product candidates and technology;
- If we do not obtain patent term extension in the United States under the Hatch-Waxman Act or in foreign countries under similar legislation, our business might be materially harmed;
- If we fail to comply with our obligations in agreements under which we have licensed or, might license, intellectual property rights from third parties, or if we otherwise experience disruptions to our business relationships with our licensors, we could lose rights that are important to our business;
- We might infringe the intellectual property rights of others, which may prevent or delay our product development efforts and stop us from commercializing or increase the costs of commercializing our product candidates;
- We might be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed alleged trade secrets of one or more third parties;
- Our intellectual property might not be sufficient to protect our intended products from competition, which might negatively affect our business as well as limit our partnership or acquisition appeal;
- If we are not able to protect and control our unpatented trade secrets, know-how and other technological innovation, we might suffer competitive harm;

- We might incur substantial costs prosecuting our patent applications, maintaining our patents and patent applications, enforcing our patents, defending against third party patent infringement suits, seeking invalidation of third party patents or in-licensing third party intellectual property, as a result of litigation or other proceedings relating to patent and other intellectual property rights;
- If we are unable to protect our intellectual property rights, our competitors might develop and market products with similar or identical features that might reduce demand for our potential products;
- Our commercial success depends upon attaining significant market acceptance of our current product candidate and future product candidates, if approved, among physicians, patients, healthcare payors and cancer treatment centers;
- Even if we are able to commercialize our lead product candidate or any future product candidates, the products might not receive coverage or adequate reimbursement from third party payors in the United States and in other countries in which we seek to commercialize our intended products, which could harm our business;

- Healthcare legislative measures aimed at reducing healthcare costs might have a material adverse effect on our business and results of operations;
- Price controls might be imposed in foreign markets, which might adversely affect our future profitability;
- Our relationships with customers and third party payors will be subject to applicable anti-kickback, fraud and abuse and other healthcare laws and regulations, which could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm and diminished profits and future earnings. If we or they are unable to comply with these provisions, we might become subject to civil and criminal investigations and proceedings that could have a material adverse effect on our business, financial condition and prospects;
- Our employees might engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements, which could cause significant liability for us and harm our reputation;
- Product liability lawsuits against us could cause us to incur substantial liabilities and to limit commercialization of any products that we might develop;
- We face substantial competition, which might result in others discovering, developing or commercializing products before or more successfully than we do;
- Significant disruptions of information technology systems, computer system failures or breaches of information and cyber security could adversely affect our business;
- We might need to grow the size of our organization in the future, and we might experience difficulties in managing this growth;
- Inadequate funding for the FDA, the SEC and other government agencies 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 might rely, which could negatively impact our business;
- Unstable market and economic conditions and adverse developments with respect to financial institutions and associated liquidity risk may have serious adverse consequences on our business, financial condition and stock price;
- We are a "smaller reporting company" and we have elected to comply with certain reduced reporting and disclosure requirements which could make its common stock less attractive to investors;
- The price of our common stock might fluctuate substantially;
- A sale or perceived sale of a substantial number of shares of our common stock might cause the price of our common stock to decline;
- Market and economic conditions might negatively impact our business, financial condition and share price;
- If securities or industry analysts do not publish research or reports, or publish unfavorable research or reports about our business, our stock price and trading volume might decline;
- Future sales and issuances of our common stock could result in additional dilution of the percentage ownership of our stockholders and could cause our share price to fall;
- We do not intend to pay cash dividends on our shares of Common Stock so any returns will be limited to the value of our shares;

- We might be at risk of securities class action litigation;
- Our Certificate of Incorporation and our Amended and Restated Bylaws, and Delaware law might have anti-takeover effects that could discourage, delay or prevent a change in control, which might cause our stock price to decline;
- Financial reporting obligations of being a public company in the United States are expensive and time-consuming, and our management will be required to devote substantial time to compliance matters; and
- If we fail to comply with the rules under Sarbanes-Oxley related to accounting controls and procedures in the future, or, if we discover material weaknesses and other deficiencies in our internal control and accounting procedures, our stock price could decline significantly and raising capital could be more difficult.

We caution you that the foregoing list may not contain all of the forward-looking statements made in this prospectus. We have based these forward-looking statements largely on our current expectations about future events and financial trends that we believe may affect our financial condition, results of operations, business strategy, short term and long-term business operations and objectives, and financial needs. These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including those described in "Risk Factors". Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed in this prospectus may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements.

You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. We undertake no obligation to update publicly any forward-looking statements for any reason after the date of this prospectus to conform these statements to actual results or to changes in our expectations.

You should read this prospectus and the documents that we reference in this prospectus and have filed with the Securities and Exchange Commission as exhibits to the registration statement of which this prospectus is a part with the understanding that our actual future results, levels of activity, performance and events and circumstances may be materially different from what we expect.

USE OF PROCEEDS

We estimate that the net proceeds from this offering will be approximately $5,180,000 (or approximately $5,999,000 if the over-allotment option is exercised in full) after deducting the underwriter discount and estimated offering expenses payable by us.

We will only receive additional proceeds from the exercise of the Underwriter Warrants if such Warrants are exercised and the holders of such Warrants pay the exercise price in cash.

We currently intend to use the net proceeds of this offering for working capital and for general corporate purposes, including funding our research and development activities, consisting primarily of our ongoing clinical trials, and the legal, accounting and various other costs of being a public company. Subject to the availability of adequate operating capital, from this offering or from other sources, we also plan to expand our investor relations and public relations programs over the next twelve to eighteen months, at a cost of up to approximately $2,000,000, to improve communications with the financial community, create targeted profiles, expand media distribution, and build a digital community with an ongoing interest in our business prospects and activities.

The actual allocation of proceeds realized from this offering will depend upon our cash position and our working capital requirements. We cannot currently allocate specific percentages of the net proceeds to us from this offering that we may use for these purposes. Therefore, as of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds to be received upon the completion of this offering. Accordingly, we will have discretion in the application of the net proceeds, and investors will be relying on our judgment regarding the application of the proceeds of this offering. Pending our use of the net proceeds from this offering, we intend to invest the net proceeds in a variety of capital preservation investments, including short-term, investment-grade, interest-bearing instruments and U.S. government securities.

CAPITALIZATION

The following table sets forth our capitalization as of March 31, 2025 as follows:

- on an actual basis;
- on an as adjusted basis, to reflect the conversion of 350,000 shares of Series A Convertible Preferred Stock outstanding into 72,917 shares of common stock pursuant to a notice of conversion dated May 16, 2025; and
- On an as further adjusted basis, to reflect the issuance and sale of 5,263,158 shares of Common Stock in the offering as described herein at the public offering price of $1.14 per share of Common Stock, assuming no sale of Pre-Funded Warrants or exercise of the underwriter over-allotment option, after deducting underwriter fees and estimated offering expenses and the receipt of the proceeds of such sale.

The information below is illustrative only. Our capitalization following the closing of this Common Stock offering will change based on the actual public offering price and other terms of this offering determined at pricing. You should read this table in conjunction with "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" and the unaudited consolidated financial statements and related notes included in our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2025.

	As of March 31, 2025		
	Actual (unaudited)	As Adjusted (unaudited)	As Further Adjusted (unaudited)
Cash	$ 1,384,697	$ 1,384,697	$ 6,564,697
Stockholders' equity:			
Preferred stock, $0.0001 par value per share, 10,000,000 shares authorized; issued and outstanding – 350,000 shares	$ 3,500,000	$ —	$ —
Common stock, $0.0001 par value per share; 100,000,000 shares authorized; issued and outstanding – 2,684,074 shares actual, 2,756,991 shares on an as adjusted basis, and 8,020,149 shares on an as further adjusted basis	268	275	802
Additional paid-in capital	50,436,110	53,936,103	59,115,577
Accumulated deficit	(52,777,248)	(52,777,248)	(52,777,248)
Total stockholders' equity	1,159,130	1,159,130	6,339,130
Total capitalization	$ 1,159,130	$ 1,159,130	$ 6,339,130

The number of shares of our common stock outstanding as set forth above excludes:

- 662,078 shares of common stock issuable upon the exercise of common stock options issued to members of management, consultants and directors at a weighted average exercise price of $11.526 per share;
- 1,275,758 shares of common stock issuable upon exercise of outstanding common stock warrants at an average exercise price of $11.254 per share of common stock, including 434,784 shares of common stock issuable upon exercise of 434,784 common stock warrants exercisable at $2.29 per share issued in our February 13, 2025 offering, 32,609 shares of common stock issuable upon exercise of 32,609 common stock warrants exercisable at $3.1088 per share issued to the placement agent in our February 13, 2025 offering, and 149,700 shares of common stock issuable upon exercise of 149,700 publicly traded warrants at $57.00 per share of common stock through November 30, 2025;
- 133,339 shares of common stock reserved for future grants pursuant to our 2020 Stock Incentive Plan, as amended (the "2020 Plan"); and
- 263,158 shares of common stock issuable upon exercise of the Underwriter Warrants at an exercise price of $1.425 per share of common stock issuable to the underwriter in this offering, assuming that the underwriter over-allotment option is not exercised.

Unless otherwise indicated, this prospectus also assumes no sale of Pre-Funded Warrants, no exercise of any of the Underwriter Warrants, and no exercise of the underwriter over-allotment option.

DILUTION

If you invest in our Common Stock in this offering, your investment will be immediately and substantially diluted to the extent of the difference between the public offering price per share of our common stock and the as adjusted net tangible book value per share of our common stock after giving effect to the offering.

Our net tangible book value as of March 31, 2025 was $1,159,130, or $0.42 per share. Net tangible book value per share represents our total tangible assets less total liabilities, divided by the number of shares of common stock outstanding.

As adjusted net tangible book value dilution per share of common stock to new investors represents the difference between the amount per share of Common Stock of common stock that is paid by investors in the offering and the net tangible book value per share of common stock immediately after completion of the offering. After giving effect to the offering and our sale of the Common Stock in the offering at an assumed public offering price of $1.14 per share of Common Stock, and after deduction of underwriter fees from gross proceeds raised in the offering and estimated offering expenses payable by us, our as adjusted net tangible book value as of March 31, 2025 would have been $6,339,130 or $0.79 per share of common stock. This represents an immediate increase in net tangible book value of $0.37 per share of common stock to existing stockholders and an immediate dilution in net tangible book value of $0.35 per share of common stock to investors in the offering, as illustrated in the following table, based on the shares of Common Stock outstanding as of March 31, 2025, as adjusted to reflect the conversion of 350,000 shares of Series A Convertible Preferred Stock outstanding into 72,917 shares of common stock pursuant to a notice of conversion dated May 16, 2025.

The information below is illustrative only and assumes the maximum offering amount of $6,000,000 is sold. The dilution caused by this offering will change based on the actual public offering amount and price and other terms of this offering determined at pricing. You should read this table in conjunction with "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" and the unaudited consolidated financial statements and related notes included in our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2025.

Assumed offering price per share of common stock		$ 1.14
Actual net tangible book value per share of common stock before this offering[(1)]	$ 0.42	
Increase in net tangible book value per share attributable to new investors[(2)]	$ 0.37	

Net tangible book value per share after this offering[3]	$	0.79
Immediate dilution in net tangible book value per share to new investors	$	0.35

(1) Determined by dividing (i) net tangible book value (total assets less intangible assets) less total liabilities by (ii) the total number of shares of common stock issued and outstanding prior to the offering.
(2) Represents the difference between (i) as adjusted net tangible book value per share after this offering and (ii) net tangible book value per share as of March 31, 2025.
(3) Determined by dividing (i) as adjusted net tangible book value, which is our net tangible book value plus the cash proceeds of this offering, after deducting the estimated offering expenses payable by us, by (ii) the total number of shares of common stock to be outstanding following this offering.

An increase of $0.25 in the assumed public offering price of $1.14 per share of Common Stock would increase the net tangible book value per share after this offering by $0.106 per share and increase the dilution to new investors purchasing Common Stock in this offering by $0.144 per share, assuming the amount of the offering as set forth on the cover page of this prospectus remains the same, and after deducting the underwriter fees and estimated offering expenses payable by us.

A decrease of $0.25 in the assumed public offering price of $1.14 per share of Common Stock would decrease the net tangible book value per share after this offering by $0.123 per share and would decrease the dilution to new investors purchasing Common Stock in this offering by $0.127 per share, assuming the amount of the offering as set forth on the cover page of this prospectus remains the same, and after deducting the underwriter fees and estimated offering expenses payable by us.

If we only sell 75%, 50% or 25% of the maximum offering amount of $6,000,000, our net tangible book value per share after this offering would be $0.742, $0.670 or $0.551, respectively, and the immediate dilution in net tangible book value per share to new investors purchasing Common Stock in this offering would be $0.398, $0.470 or $0.598, respectively, assuming no Pre-Funded Warrants are issued and after deducting the underwriter fees and estimated offering expenses payable by us.

If the underwriter exercises its over-allotment option in full to purchase an additional 789,143 shares of Common Stock at $1.14 per share, our as further adjusted net tangible book value, after giving effect to this offering, would have been approximately$0.813 per share, representing an increase in net tangible book value of approximately $0.393 per share to existing stockholders and immediate dilution in net tangible book value of approximately $0.327 per share to new investors purchasing shares in this offering.

The information discussed above is illustrative only and will adjust based on the actual public offering price, the actual number of shares of Common Stock that we offer in this offering, and other terms of this offering determined at the time of pricing. The foregoing discussion and table assume no issuance 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. In addition, we may choose to raise additional capital due to market conditions or strategic considerations. 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.

The number of shares of our common stock outstanding as set forth above excludes:

- 662,078 shares of common stock issuable upon the exercise of common stock options issued to members of management, consultants and directors at a weighted average exercise price of $11.526 per share;
- 1,275,758 shares of common stock issuable upon exercise of outstanding common stock warrants at an average exercise price of $11.254 per share of common stock, including 434,784 shares of common stock issuable upon exercise of 434,784 common stock warrants exercisable at $2.29 per share issued in our February 13, 2025 offering, 32,609 shares of common stock issuable upon exercise of 32,609 common stock warrants exercisable at $3.1088 per share issued to the placement agent in our February 13, 2025 offering, and 149,700 shares of common stock issuable upon exercise of 149,700 publicly traded warrants at $57.00 per share of common stock through November 30, 2025;
- 133,339 shares of common stock reserved for future grants pursuant to our 2020 Stock Incentive Plan, as amended (the "2020 Plan"); and
- 263,158 shares of common stock issuable upon exercise of common stock warrants at an exercise price of $1.425 per share of common stock issuable to the underwriter in this offering, assuming that the underwriter over-allotment option is not exercised.

Unless otherwise indicated, this prospectus also assumes no sale of Pre-Funded Warrants, no exercise of any of the Underwriter Warrants, and no exercise of the underwriter over-allotment option.

SELECTED HISTORICAL FINANCIAL DATA

Consolidated Statements of Operations Data

	Three Months Ended March 31,	
	2025	**2024**
Revenues	$ —	$ —
Costs and expenses:		
Research and development costs	91,457	119,064
General and administrative costs	615,483	847,815
Total costs and expenses	706,940	966,879
Loss from operations	(706,940)	(966,879)
Interest income	441	2,859
Interest expense	(3,135)	(7,186)
Foreign currency gain (loss)	79	(116)
Net loss	$ (709,555)	$ (971,322)
Net loss per share of common stock – basic and diluted	$ (0.29)	$ (0.43)
Weighted average shares of common stock outstanding – basic and diluted	2,471,513	2,249,290

Consolidated Balance Sheet Data

	March 31,

	2025	2024
Total current assets	$ 1,514,228	$ 3,589,203
Total assets	$ 1,514,228	$ 3,589,203
Total current liabilities	$ 355,098	$ 462,836
Total liabilities	$ 355,098	$ 462,836
Stockholders' equity:		
Preferred Stock, $0.0001 par value; authorized – 10,000,000 shares; issued and outstanding – 350,000 shares of Series A Convertible Preferred Stock, $10.00 per share stated value, liquidation preference based on assumed conversion into common stock – 72,917 shares at March 31, 2025 and 2024	$ 3,500,000	$ 3,500,000
Common stock, $0.0001 par value; authorized – 100,000,000 shares; issued and outstanding – 2,684,074 shares and 2,249,290 shares at March 31, 2025 and 2024, respectively	268	225
Additional paid-in capital	50,436,110	49,079,192
Accumulated deficit	(52,777,248)	(49,453,050)
Total stockholders' equity	$ 1,159,130	$ 3,126,367

Consolidated Statements of Operations Data

	Years Ended December 31,	
	2024	2023
Revenues	$ —	$ —
Costs and expenses:		
Research and development costs	726,232	898,100
General and administrative costs	2,846,557	4,192,136
Total costs and expenses	3,572,789	5,090,236
Loss from operations	(3,572,789)	(5,090,236)
Interest income	7,048	17,486
Interest expense	(16,821)	(16,233)
Foreign currency gain (loss)	(3,403)	1,954
Net loss	$ (3,585,965)	$ (5,087,029)
Net loss per share of common stock – basic and diluted	$ (1.59)	$ (2.66)
Weighted average shares of common stock outstanding – basic and diluted	2,249,290	1,915,838

Consolidated Balance Sheet Data

	December 31,	
	2024	2023
Total current assets	$ 1,145,503	$ 4,308,620
Total assets	$ 1,145,503	$ 4,308,620
Total current liabilities	$ 318,824	$ 313,858
Total liabilities	$ 318,824	$ 313,858
Stockholders' equity:		
Preferred Stock, $0.0001 par value; authorized – 10,000,000 shares; issued and outstanding – 350,000 shares of Series A Convertible Preferred Stock, $10.00 per share stated value, liquidation preference based on assumed conversion into common stock – 72,917 shares	$ 3,500,000	$ 3,500,000
Common stock, $0.0001 par value; authorized – 100,000,000 shares; issued and outstanding – 2,249,290 shares at December 31, 2024 and 2023, respectively	225	225
Additional paid-in capital	49,394,687	48,976,265
Accumulated deficit	(52,067,693)	(48,481,728)
Total stockholders' equity	$ 827,219	$ 3,994,762

DESCRIPTION OF SECURITIES

General

Our certificate of incorporation, as amended, authorizes the issuance of up to 100,000,000 shares of common stock, par value $0.0001 per share, and up to 10,000,000 shares of preferred stock, par value $0.0001 per share.

As of March 31, 2025, there were 2,684,074 shares of common stock outstanding, which were held by 46 stockholders of record, and 350,000 shares of Series A Convertible Preferred Stock outstanding, which were subsequently converted into 72,917 shares of common stock pursuant to a notice of conversion dated May 16, 2025.

On June 2, 2023, we effected a reverse stock split of our common stock at a ratio of 1-for-10. All share and per share information presented in this prospectus reflects the effect of the reverse stock split.

Common Stock

Each holder of common stock is entitled to one vote for each share of common stock held on all matters submitted to a vote of the stockholders, including the election of directors. Our certificate of incorporation, as amended and bylaws do not provide for cumulative voting rights.

Subject to preferences that may be applicable to any then outstanding preferred stock, the holders of our outstanding shares of common stock are entitled to receive dividends, if any, as may be declared from time to time by our Board of Directors out of legally available funds. In the event of our liquidation, dissolution or winding up, holders of common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities, subject to the satisfaction of any liquidation preference granted to the holders of any outstanding shares of preferred stock.

Holders of our common stock have no pre-emptive, conversion or subscription rights, and there are no redemption or sinking fund provisions applicable to the common stock. The rights, preferences and privileges of the holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of our preferred stock that are outstanding or that we may designate and issue in the future.

Preferred Stock

Our Board of Directors is authorized, without vote or action by our stockholders, to issue from time to time up to an aggregate of 10,000,000 shares of preferred stock in one or more series and to fix or alter the designations, preferences, rights and any qualifications, limitations or restrictions of the shares of each of these series, including, if applicable, the dividend rights and preferences, conversion rights, voting rights, terms and rights of redemption, including without limitation sinking fund provisions, redemption price or prices, liquidation rights and preferences, and the number of shares constituting any series. The issuance of preferred stock may have the effect of delaying, deferring or preventing a change in control of us without further action by our stockholders and may adversely affect the dividend, liquidation and voting and other rights of the holders of common stock. The issuance of preferred stock with voting and conversion rights may adversely affect the voting power of the holders of common stock, including the loss of voting control to others. We currently have no plans to issue any additional shares of preferred stock.

We believe that the ability to issue preferred stock without the expense and delay of a special stockholders' meeting provides us with increased flexibility in structuring possible future financings and acquisitions, and in meeting other corporate needs that might arise. This also permits the Board of Directors of the Company to issue preferred stock containing terms which could impede the completion of a takeover attempt. This could discourage an acquisition attempt or other transaction which stockholders might believe to be in their best interests or in which they might receive a premium for their stock over the then market price of the stock.

Warrants

In connection with the 2023 Financing and 2025 Financing, we issued warrants to purchase a total of 1,085,727 shares to the investors and placement agents, including Warrants to purchase 583,334 shares of common stock exercisable at $6.00 per share to the investor in the 2023 Financing and Warrants to purchase 434,784 shares of common stock exercisable at $2.29 per share to the investors in the 2025 Financing.

The exercise prices of the Warrants are subject to customary adjustments for stock splits, stock dividends, stock combinations, reclassifications, reorganizations, or similar events affecting our common stock. In addition, the Warrants contain a "fundamental transaction" provision which provides that if any defined fundamental transactions are within our control and are consummated, the holder of the unexercised common stock Warrants would be entitled to receive, at its option, in exchange for extinguishment of such Warrants, cash consideration equal to a Black-Scholes valuation amount, as defined in the Warrant agreement. The fundamental transaction provision includes (i) a sale, lease, assignment, transfer, conveyance or other disposition of all or substantially all of assets in one or a series of related transactions, or (ii) a change in control of the Company by which it, directly or indirectly, in one or more related transactions, consummates a stock or share purchase agreement or other business combination with another person or group, whereby such other person or group acquires more than 50% of the voting power of our common equity.

If such fundamental transaction is not within our control, including not being approved by our Board of Directors, the Warrant holder would only be entitled to receive the same type or form of consideration (and in the same proportion) equal to the Black-Scholes valuation amount of the remaining unexercised portion of the Warrant on the date of consummation of such fundamental transaction as the holders of our common stock receive. Accordingly, these Warrants are classified as a component of permanent stockholders' equity. We will account for any cash payment for a Warrant redemption as a distribution from stockholders' equity, as and when a fundamental transaction is consummated and such cash payment is made.

Anti-Takeover Effects of Certain Provisions in our Certificate and Bylaws

Exclusive Forum

The certificate of incorporation provides that, unless we consent to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of fiduciary duty owed by any of our directors, officers, or other employee to us or to our stockholders, (iii) any action asserting a claim against us arising pursuant to any provision of the Delaware General Corporation Law, the certificate of incorporation or the bylaws or (iv) any action asserting a claim governed by the internal affairs doctrine. However, this provision does not apply to suits brought to enforce a duty or liability created by the Exchange Act. In addition, the Court of Chancery of the State of Delaware and the federal district courts will have concurrent jurisdiction for the resolution of any suit brought to enforce any duty or liability created by the Securities Act. Notwithstanding the foregoing, the inclusion of such provisions in the certificate of incorporation will not be deemed to be a waiver by us or our stockholders of the obligation to comply with federal securities laws, rules and regulations.

Although we believe these provisions benefit the Company by providing increased consistency in the application of Delaware law in the types of lawsuits to which it applies, these provisions may have the effect of discouraging lawsuits against the Company's directors and officers. Furthermore, the enforceability of choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be inapplicable or unenforceable.

Advance Notice of Stockholder Proposals and Nominations

Our bylaws include an advance notice procedure for stockholders to nominate candidates for election as directors or to bring other business before any meeting of our stockholders. The stockholder notice procedure provides that only persons who are nominated by, or at the direction of, the Board of Directors, or by a stockholder who has given timely written notice prior to the meeting at which directors are to be elected, will be eligible for election as directors and that, at a stockholders' meeting, only such business may be conducted as has been brought before the meeting by, or at the direction of, the Board of Directors or by a stockholder who has given timely written notice of such stockholder's intention to bring such business before such meeting.

Under the stockholder notice procedure, for notice of stockholder nominations or other business to be made at a stockholders' meeting to be timely, such notice must

be received by us not earlier than the close of business on the 120th calendar day and not later than the close of business on the 90th calendar day prior to the one-year anniversary of the immediately preceding year's annual meeting or as otherwise provided in the bylaws.

A stockholder's notice to us proposing to nominate a person for election as a director or proposing other business must contain certain information specified in the bylaws, including the identity and address of the nominating stockholder, a representation that the stockholder is a record holder of our stock entitled to vote at the meeting and information regarding each proposed nominee or each proposed matter of business that would be required under the federal securities laws to be included in a proxy statement soliciting proxies for the proposed nominee or the proposed matter of business.

The stockholder notice procedure may have the effect of precluding a contest for the election of directors or the consideration of stockholder proposals if the proper procedures are not followed, and of discouraging or deterring a third party from conducting a solicitation of proxies to elect its own slate of directors or to approve its own proposal, without regard to whether consideration of such nominees or proposals might be harmful or beneficial to us and our stockholder.

Restrictions on Call of Special Meetings

Our bylaws provide that special meetings of stockholders can only be called by the Board of Directors, Chief Executive Officer or President (in the absence of a Chief Executive Officer), but not by our stockholders or any other person or persons.

No Cumulative Voting

The certificate of incorporation does not authorize cumulative voting for the election of directors.

Preferred Stock Authorization

Our Board of Directors, without stockholder approval, has the authority under our certificate of incorporation to issue preferred stock with rights superior to the rights of the holders of common stock. As a result, preferred stock, while not intended as a defensive measure against takeovers, could be issued quickly and easily, could adversely affect the rights of holders of common stock, and could be issued with terms calculated to delay or prevent a change of control of the Company or make removal of management more difficult.

DESCRIPTION OF SECURITIES WE ARE OFFERING

Common Stock

The material terms and provisions of our common stock are described under the caption "Description of Securities".

Pre-Funded Warrants

The following description of the Pre-Funded Warrants we are offering is a summary and is qualified in its entirety by reference to the provisions of the Pre-Funded Warrants, the form of which is filed as an exhibit to the registration statement of which this prospectus forms a part.

Each Pre-Funded Warrant is exercisable for one share of our common stock, with an exercise price equal to $0.00001 per share, at any time that the Pre-Funded Warrant is outstanding. There is no expiration date for the Pre-Funded Warrants. The holder of a Pre-Funded Warrant will not be deemed a holder of our underlying common stock until the Pre-Funded Warrant is exercised.

The exercise price and the number of shares of common stock issuable upon exercise of the Pre-Funded Warrants are subject to appropriate adjustment in the event of recapitalization events, stock dividends, stock splits, stock combinations, reclassifications, reorganizations or similar events affecting our common stock.

The term "pre-funded" refers to the fact that the purchase price of our common stock in this offering includes almost the entire exercise price that will be paid under the Pre-Funded Warrants, except for a nominal remaining exercise price of $0.00001. The purpose of the Pre-Funded Warrants is to enable investors that may have restrictions on their ability to beneficially own more than 4.99% (or, upon election of the holder, 9.99%) of our outstanding common stock following the consummation of this offering the opportunity to make an investment in us without triggering their ownership restrictions, by receiving Pre-Funded Warrants in lieu of our common stock which would result in such ownership of more than 4.99% (or 9.99%), and receive the ability to exercise their option to purchase the shares underlying the Pre-Funded Warrants at such nominal price at a later date.

The Pre-Funded Warrants are exercisable, at the option of the 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 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 Pre-Funded Warrants to the extent that the holder would own more than 4.99% (or, at the election of the holder, 9.99%) of the outstanding shares of common stock immediately after exercise. However, upon notice from the holder to us, the holder may decrease or increase the holder's beneficial ownership limitation, which may not exceed 9.99% of the number of outstanding shares of common stock immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the Pre-Funded Warrants, provided that any increase in the beneficial ownership limitation will not take effect until sixty-one (61) days following notice to us. Purchasers 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 shares of common stock. No fractional shares will be issued in connection with the exercise of a Pre-Funded Warrant. In lieu of fractional shares, we will either pay the holder an amount in cash equal to the fractional amount multiplied by the exercise price or round up to the next whole share.

If at the time a holder exercises its Pre-Funded Warrants, a registration statement registering the issuance of the shares of common stock underlying the Pre-Funded 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 Pre-Funded Warrants.

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. Accordingly, 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 our shares of common stock, the holders of the Pre-Funded Warrants do not have the rights or privileges of holders of our shares of common stock, including any voting rights, until the holder exercises 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 shares of 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 more than 50% of our outstanding shares of common stock, or any person or group becoming the beneficial owner of more than 50% of the voting power represented by our outstanding shares of 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.

UNDERWRITING

We will enter into an underwriting agreement with Spartan Capital Securities, LLC in connection with this offering. Spartan is acting as the sole book-running manager. The underwriting agreement provides for the purchase of a specific number of shares of Common Stock. The underwriter has agreed to purchase the number of share of Common Stock set forth opposite its name below:

Underwriter	Number of Shares
Spartan Capital Securities, LLC	5,263,158

The underwriting agreement provides that the underwriter's obligation to purchase Common Stock depends on the satisfaction of the conditions contained in the underwriting agreement including:

- the representations and warranties made by us to the underwriter are true;
- there is no material change in our business or the financial markets; and
- we deliver customary closing documents to the underwriter.

The underwriter has agreed to purchase all of the shares of Common Stock offered by this prospectus (other than those covered by the over-allotment option described below), if any are purchased under the underwriting agreement.

The underwriter is offering the Common Stock subject to various conditions and may reject all or part of any order. The underwriter has advised us that the underwriter proposes to offer the Common Stock directly to the public at the public offering price per share of Common Stock that appears on the cover page of this prospectus. In addition, the underwriter may offer some of the Common Stock to other securities dealers at such price less a concession of $0.04 per share of Common Stock. After the shares of Common Stock are released for sale to the public, the underwriter may change the offering price and other selling terms at various times.

We have granted the underwriter an over-allotment option to purchase up to 789,474 shares of Common Stock, representing 15% of the Common Stock sold in the offering at an assumed public offering price of $1.14 per share of Common Stock, solely to cover any over-allotments in connection with the sale of the Common Stock. The underwriter may exercise this over-allotment option in whole or in part at any time within forty-five (45) calendar days after the date of the offering.

If the underwriter exercises all or part of this option, Spartan will pay for Common Stock covered by the option at the public offering price that appears on the cover page of this prospectus, less the underwriter discount. The underwriter has agreed that, to the extent the over-allotment option is exercised, it will purchase the additional shares, reflected in the foregoing table.

We have also granted the underwriter five-year warrants to purchase up to 5.0% of share of Common Stock and the over-allotment option at an exercise price of 125% of the offering price per share of Common Stock.

The following table provides information regarding the amount of the discount to be paid to the underwriter by us, before expenses (these amounts are shown assuming both no exercise and full exercise of the underwriter's over-allotment option in the offering):

	Per Share	Total Without Exercise of Underwriter's Over-Allotment Option	Total With Full Exercise of Underwriter's Over-Allotment Option
Public offering price	$	$	$
Underwriter discount (8.0%)	$ ( )	$ ( )	$ ( )
Non-accountable expense allowance (1.0%)[1]	$ ( )	$ ( )	$ ( )
Proceeds to us (before expenses)	$	$	$

(1) We have agreed to pay a non-accountable expense allowance to Spartan equal to 1.0% of the gross proceeds received in this offering. We have also agreed to reimburse Spartan for up to $125,000 of out-of-pocket fees and expenses, including, but not limited to, legal fees and disbursements for the underwriter's counsel.

From time to time, Spartan or its affiliates have in the past or may in the future engage in investment banking and/or other services with us and our affiliates for which they have received or may in the future receive customary fees and expenses.

Lock-Up Agreements

Our directors, executive officers and 10% stockholders have agreed that, for a period of sixty (60) days from the closing date of the offering, subject to certain limited exceptions, they will not directly or indirectly, without the prior written consent of Spartan, (a) offer, sell, or otherwise transfer or dispose of, directly or indirectly, any shares of capital stock of the Company or any securities convertible into or exercisable or exchangeable for shares of capital stock of the Company; or (b) file or caused to be filed any registration statement with the Commission relating to the offering of any shares of capital stock of the Company or any securities convertible into or exercisable or exchangeable for shares of capital stock of the Company.

Spartan, in its sole discretion, may release the common stock and other securities subject to the lock-up agreements described above in whole or in part at any time. When determining whether or not to release common stock and other securities from lock-up agreements, Spartan will consider, among other factors, the holder's reasons for requesting the release, the number of shares of common stock and other securities for which the release is being requested and market conditions at the time.

Company Standstill

We have agreed, for a period of sixty (60) days after the closing date of the offering (the "Standstill Period"), that without the prior written consent of Spartan, we will not (a) offer, sell, issue, or otherwise transfer or dispose of, directly or indirectly, any equity of our Company or any securities convertible into or exercisable or exchangeable for equity of our Company; (b) file or caused to be filed any registration statement with the Commission relating to the offering of any equity of our Company or any securities convertible into or exercisable or exchangeable for equity of our Company; or (c) enter into any agreement or announce the intention to effect any of the actions described in subsections (a) or (b) hereof (all of such matters, the "Standstill Restrictions"). So long as none of such equity securities shall be saleable in the public market until the expiration of the Standstill Period, the following matters shall not be prohibited by the Standstill Restrictions: (i) the adoption of an equity incentive plan and the grant of awards or equity pursuant to any equity incentive plan, and the filing of a registration statement on Form S-8; and (ii) securities issued pursuant to acquisitions or strategic transactions approved by a majority of the disinterested directors of our Company, provided that such securities are issued as "restricted securities" (as defined in Rule 144) and carry no registration rights that require or permit the filing of any registration statement in connection therewith during the Standstill Period, and provided that any such issuance shall only be to a person or entity (or to the equity holders of an entity) which is, itself or through its subsidiaries, an operating company or an owner of an asset in a business synergistic with the business of our Company and shall provide to our Company additional benefits in addition to the investment of funds, but shall not include a transaction in which our Company is issuing securities primarily for the purpose of raising capital or to an entity whose primary business is investing in securities. In no event should any equity transaction during the Standstill Period result in the sale of equity at an offering price to the public less than that of this offering.

Underwriter Warrants

As additional compensation to Spartan, upon consummation of the offering, we will issue to Spartan or its designees warrants to purchase an aggregate number of shares of common stock equal to 5.0% of the number of shares of Common Stock issued in the offering, at an exercise price per share equal to 125.0% of the public offering price (the "Underwriter Warrants"). The Underwriter Warrants and the underlying shares of common stock will 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 Underwriter Warrants by any person for a period of one hundred eighty (180) Calendar Days beginning on the date of commencement of sales of the offering in compliance with FINRA Rule 5110(e)(1).

The Underwriter Warrants will be exercisable from the date that is six (6) months from the commencement of the sales of the offering, and will expire five (5) years from the commencement of sales of the offering in compliance with FINRA Rule 5110(g)(8)(A). In addition, such Underwriter Warrants shall be exercisable on a cash basis, provided that if a registration statement registering the Common Stock underlying the Underwriter Warrants is not effective, the Underwriter Warrants may be exercised on a cashless basis. Furthermore, (i) the Underwriter Warrants do not have more than one demand registration right at our Company's expense in compliance with FINRA Rule 5110(g)(8)(B); (ii) the Underwriter Warrants do not have a demand registration right with a duration of more than five (5) years from the commencement of sales of the public offering in compliance with FINRA Rule 5110(g)(8)(C); (iii) the Underwriter Warrants do not have piggyback registration rights with a duration of more than seven (7) years from the commencement of sales of the public offering in compliance with FINRA Rule 5110(g)(8)(D); and (iv) the Underwriter Warrants have anti-dilution terms that are consistent with FINRA Rule 5110(g)(8)(E) and (F).

Right of First Refusal

During the Right of First Refusal Period and subject to any Senior Right of First Refusal (as defined below), if we or any of our subsidiaries (a) decides to dispose of or acquire business units or acquire any of its outstanding securities or make any exchange or tender offer or enter into a merger, consolidation or other business combination or any recapitalization, reorganization, restructuring or other similar transaction, including, without limitation, an extraordinary dividend or distributions or a spin-off or split-off, and the Company decides to retain a financial advisor for such transaction, Spartan (or any affiliate designated by Spartan) shall have the right to act as the Company's exclusive financial advisor for any such transaction; or (b) decides to finance or refinance any indebtedness, Spartan (or any affiliate designated by Spartan) shall have the right to act as sole book-runner, sole manager, sole placement agent or sole agent with respect to such financing or refinancing; or (c) decides to raise funds by means of a public offering (including an at-the-market facility) or a private placement or any other capital raising financing of equity, equity-linked or debt securities, Spartan (or any affiliate designated by Spartan) shall have the right to act as sole book-running manager, sole underwriter or sole placement agent for such financing. The Company shall provide written notice to Spartan of any proposed transaction set forth in (a) – (c) above, including a detailed term sheet. Spartan (including through its affiliates) shall have ten (10) business days following receipt of such detailed term sheet to determine whether to waive its rights under the right of first refusal. If Spartan or one of its affiliates decides to accept any such engagement, the agreement governing such engagement will contain, among other things, provisions for customary fees and terms for transactions of similar size and nature, including indemnification, which are appropriate to such a transaction, provided, however, that after Spartan delivers such engagement letter, the Company may notify Spartan that it wishes to terminate the right of first refusal by paying a fee of $10,000, to be effective only upon receipt of such payment. The Right of First Refusal Period shall be the period beginning on the date hereof and ending on the date that is the earlier of (i) six (6) months after the expiration or earlier termination of any senior right of first refusal ("Senior Right of First Refusal") existing on the date hereof with respect to any transactions described in (a) – (c) above, or (ii) the date that is the three (3) year anniversary of the commencement of sales in the Offering.

Notwithstanding the foregoing, the decision to accept our engagement shall be made by Spartan or one of its affiliates, by a written notice to us, within ten (10) Business Days after the receipt of our notification of financing needs, including a detailed term sheet. Spartan's determination of whether in any case to exercise its right of first refusal will be strictly limited to the terms on such term sheet, and any waiver of such right of first refusal shall apply only to such specific terms. If Spartan waives its right of first refusal, any deviation from such terms shall void the waiver and require us to seek a new waiver from the right of first refusal.

Tail Financing

Spartan shall be entitled to compensation with respect to any public or private offering or other financing or capital raising transaction of any kind to the extent that such financing or capital is provided to us by funds whom Spartan had contacted during the engagement period or introduced to us during the engagement period, if such tail financing is consummated at any time within the twelve (12) month period following the closing of the offering or the expiration or termination of the letter of engagement, as amended between Spartan and us dated April 23, 2025, as may be further amended from time to time.

Stabilization

In accordance with Regulation M under the Exchange Act, the underwriter may engage in activities that stabilize, maintain or otherwise affect the price of our common stock, including short sales and purchases to cover positions created by short positions, stabilizing transactions, syndicate covering transactions, penalty bids and passive market making.

- Short positions involve sales by the underwriter of shares of common stock in excess of the number of shares the underwriter is obligated to purchase, which creates a syndicate short position. The short position may be either a covered short position or a naked short position. In a covered short position, the number of shares involved in the sales made by the underwriter in excess of the number of shares they are obligated to purchase is not greater than the number of shares that they may purchase by exercising their option to purchase additional shares. In a naked short position, the number of shares involved is greater than the number of shares in their option to purchase additional shares. The underwriter may close out any short position by either exercising their option to purchase additional shares or purchasing shares in the open market.

- Stabilizing transactions permit bids to purchase the underlying security as long as the stabilizing bids do not exceed a specific maximum price.

- Syndicate covering transactions involve purchases of our shares of common stock in the open market after the distribution has been completed to cover syndicate short positions. In determining the source of shares to close out the short position, the underwriter will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the underwriter's option to purchase additional shares. If the underwriter sells more shares than could be covered by the underwriter's option to purchase additional shares, thereby creating a naked short position, the position can only be closed out by buying shares in the open market. A naked short position is more likely to be created if the underwriter is concerned that there could be downward pressure on the price of the shares in the open market after pricing that could adversely affect investors who purchase in the offering.

- Penalty bids permit the representative to reclaim a selling concession from a syndicate member when the shares of common stock originally sold by the syndicate member is purchased in a stabilizing or syndicate covering transaction to cover syndicate short positions.

- In passive market making, market makers in our common stock who are underwriters or prospective underwriters may, subject to limitations, make bids for or purchase our common stock until the time, if any, at which a stabilizing bid is made.

These activities may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock. As a result of these activities, the price of our common stock may be higher than the price that might otherwise exist in the open market. These transactions may be effected on the Nasdaq Capital Market or otherwise and, if commenced, may be discontinued at any time.

Neither we nor the underwriter makes any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our common stock. In addition, neither we nor the underwriter makes any representation that Spartan will engage in these stabilizing transactions or that any transaction, once commenced, will not be discontinued without notice.

Discretionary Accounts

The underwriter has informed us that they do not expect to make sales to accounts over which they exercise discretionary authority in excess of five percent (5%) of the securities being offered in this offering.

Other Relationships

The underwriter is a full service financial institution engaged in various activities, which may include sales and trading, commercial and investment banking, advisory, investment management, investment research, principal investment, hedging, market making, brokerage and other financial and non-financial activities and services. The underwriter may in the future provide various investment banking, commercial banking and other financial services for us and our affiliates for which they may in the future receive customary fees.

In the ordinary course of its business activities, the underwriter and its affiliates, officers, directors and employees may purchase, sell or hold a broad array of investments and actively traded securities, derivatives, loans, commodities, currencies, credit default swaps and other financial instruments for their own account and for the accounts of their customers, and such investment and trading activities may involve or relate to assets, securities and/or instruments of the issuer (directly, as collateral securing other obligation or otherwise) publish or express independent research views in respect of such assets, securities or instruments and may at any time hold, or recommend to clients that they should acquire, long and/or short positions in such assets, securities and instruments.

Electronic Offer, Sale and Distribution of Shares

A prospectus in electronic format may be made available on the websites maintained by the underwriter, if any, participating in this offering and the underwriter participating in this offering may distribute prospectuses electronically. The underwriter may agree to allocate a number of shares of Common Stock and Pre-Funded Warrants for sale to its online brokerage account holders. Internet distributions will be allocated by the underwriter that will make internet distributions on the same basis as other allocations. Other than the prospectus in electronic format, the information on these websites is not part of, nor incorporated by reference into, this prospectus or the registration statement of which this prospectus forms a part, has not been approved or endorsed by us or the underwriter in its capacity as underwriter, and should not be relied upon by investors.

Offer Restrictions Outside the United States

Other than in the United States, no action has been taken by us or the underwriter that would permit a public offering of the securities offered by this prospectus in any jurisdiction where action for that purpose is required. The securities offered by this prospectus may not be offered or sold, directly or indirectly, nor may this prospectus or any other offering material or advertisements in connection with the offer and sale of any such securities be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons who come into possession of this prospectus are advised to inform themselves about and to observe any restrictions relating to the offering and the distribution of this prospectus. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any securities offered by this prospectus in any jurisdiction in which such an offer or a solicitation is unlawful.

Indemnification

We have agreed to indemnify the underwriter against certain liabilities, including liabilities under the Securities Act of 1933.

Rules of the Securities and Exchange Commission may limit the ability of the underwriter to bid for or purchase shares before the distribution of the shares is completed. However, the underwriter may engage in the following activities in accordance with the rules:

● Stabilizing transactions — The underwriter may make bids or purchases for the purpose of pegging, fixing or maintaining the price of the shares, so long as stabilizing bids do not exceed a specified maximum.

● Over-allotments and syndicate covering transactions — The underwriter may sell more shares of our common stock in connection with this offering than the number of shares that they have committed to purchase. This over-allotment creates a short position for the underwriter. This short sales position may involve either "covered" short sales or "naked" short sales. Covered short sales are short sales made in an amount not greater than the underwriter's over-allotment option to purchase additional shares in this offering described above. The underwriter may close out any covered short position either by exercising their over-allotment option or by purchasing shares in the open market. To determine how they will close the covered short position, the underwriter will consider, among other things, the price of shares available for purchase in the open market, as compared to the price at which they may purchase shares through the over-allotment option. Naked short sales are short sales in excess of the over-allotment option. The underwriter must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriter is concerned that, in the open market after pricing, there may be downward pressure on the price of the shares that could adversely affect investors who purchase shares in this offering.

● Penalty bids — If the representative purchases shares in the open market in a stabilizing transaction or syndicate covering transaction, it may reclaim a selling concession from the underwriter and selling group members who sold those shares as part of this offering.

● Passive market making — Market makers in the shares who is the underwriter may make bids for or purchases of shares, subject to limitations, until the time, if ever, at which a stabilizing bid is made.

Similar to other purchase transactions, the underwriter's purchases to cover the syndicate short sales or to stabilize the market price of our common stock may have the effect of raising or maintaining the market price of our common stock or preventing or mitigating a decline in the market price of our common stock. As a result, the price of the shares of our common stock may be higher than the price that might otherwise exist in the open market. The imposition of a penalty bid might also have an effect on the price of the shares if it discourages resales of the shares.

Neither we nor the underwriter make any representation or prediction as to the effect that the transactions described above may have on the price of the shares. These transactions may occur on the Nasdaq Capital Market or otherwise. If such transactions are commenced, they may be discontinued without notice at any time.

● Electronic Delivery of Preliminary Prospectus — A preliminary prospectus in electronic format may be delivered to potential investors by one or more of the underwriters participating in this offering. The preliminary prospectus supplement in electronic format will be identical to the paper version of such preliminary prospectus. Other than the preliminary prospectus in electronic format, the information on any underwriter's website and any information contained in any other website maintained by an underwriter is not part of this prospectus supplement, the accompanying prospectus or the registration statement of which this prospectus forms a part.

The underwriter and its affiliates may provide from time to time in the future certain commercial banking, financial advisory, investment banking and other services for us and our affiliates in the ordinary course of their business, for which they may receive customary fees and commissions. In addition, from time to time, the underwriter and its affiliates may effect transactions for their own account or the accounts of customers, and hold on behalf of itself or its customers, long or short positions in our debt or equity securities or loans, and may do so in the future. Spartan may release, or authorize us to release, as the case may be, the common stock and other securities subject to the lock-up agreements described above in whole or in part at any time with or without notice.

Listing

Our common stock is currently listed on the Nasdaq Capital Market under the symbol "LIXT". The warrants issued in our November 2020 public offering are currently listed on the Nasdaq Capital Market under the symbol "LIXTW".

Transfer Agent and Registrar

The transfer agent and registrar for our common stock and the warrants issued in our November 2020 public offering is Computershare Trust Company, N.A.

LEGAL MATTERS

The validity of the securities offered by this prospectus will be passed upon by TroyGould PC, Los Angeles, California. Kaufman & Canoles, Richmond, Virginia is acting as counsel to the underwriter.

EXPERTS

Weinberg & Company, P.A., our independent, registered public accounting firm, has audited our consolidated financial statements as of December 31, 2024 and 2023 and for the years then ended included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2024, which is incorporated by reference into this prospectus and elsewhere in the registration statement of which this prospectus is a part. Our consolidated financial statements are incorporated by reference in reliance on Weinberg & Company P.A.'s report, which includes an explanatory paragraph regarding substantial doubt about the Company's ability to continue as a going concern, given on their authority as experts in accounting and auditing.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus certain information we file with it, which means that we can disclose important information by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus. Because we are incorporating by reference future filings with the SEC, this prospectus is continually updated and those future filings may modify or supersede some of the information included or incorporated in this prospectus. We incorporate by reference the documents listed below and all documents subsequently filed with the SEC (excluding any portions of any Form 8-K that are not deemed "filed" pursuant to the General Instructions of Form 8-K) pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act, after the date of this prospectus and prior to the date this offering is terminated or we issue all of the securities under this prospectus:

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2024, filed with the SEC on March 24, 2025;
- our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2025, filed with the SEC on May 12, 2025;
- our Current Reports on Form 8-K, filed with the SEC on January 6, 2025, February 13, 2025, February 21, 2025, February 25, 2025, March 11, 2025, March 11, 2025, March 14, 2025, March 27, 2025, March 31, 2025, April 18, 2025, May 20, 2025, and June 17, 2025; and
- the description of our common stock contained in the registration statement on Form 8-A, filed with the SEC on November 17, 2020, and any amendment or report filed for the purpose of updating such description (including Exhibit 4.1 to the Annual Report on Form 10-K for the fiscal year ended December 31, 2023).

To obtain copies of these filings, see "Where You Can Find More Information" in this prospectus. Nothing in this prospectus shall be deemed to incorporate information furnished, but not filed, with the SEC, including pursuant to Item 2.02 or Item 7.01 of Form 8-K and any corresponding information or exhibit furnished under Item 9.01 of Form 8-K.

Information in this prospectus supersedes related information in the documents listed above and information in subsequently filed documents supersedes related information in both this prospectus and the incorporated documents.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the periodic reporting requirements of the Exchange Act, and we will file periodic reports, proxy statements and other information with the SEC. These periodic reports, proxy statements and other information are available at www.sec.gov. We maintain a website at https://lixte.com. We have not incorporated by reference into this prospectus the information contained in, or that can be accessed through, our website, and you should not consider it to be a part of this prospectus. You may access our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act with the SEC free of charge at our website as soon as reasonably practicable after such material is electronically filed with, or furnished to, the SEC. You may also request a copy of these filings (other than exhibits to these documents unless the exhibits are specifically incorporated by reference into

these documents or referred to in this prospectus), at no cost, by writing us at 680 East Colorado Boulevard, Suite 180, Pasadena, California 91101 or contacting us at (631) 830-7092.

We have filed with the SEC a registration statement under the Securities Act relating to the offering of these securities. The registration statement, including the attached exhibits, contains additional relevant information about us and the securities. This prospectus does not contain all of the information set forth in the registration statement. You may review a copy of the registration statement and the documents incorporated by reference herein through the SEC's website at www.sec.gov.

LIXTE BIOTECHNOLOGY HOLDINGS, INC.

PROSPECTUS

June 17, 2025

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution

The following table sets forth the various expenses, all of which will be borne by the registrant, in connection with the sale and distribution of the securities being registered, other than the underwriter fees. All amounts shown are estimates except for the SEC registration fee and the FINRA filing fee.

SEC registration fee	$	918.60
FINRA fees		2,000.00
Transfer agent and registrar fees		10,000.00
Accounting fees and expenses		40,000.00
Legal fees and expenses		75,000.00
Underwriter expense allowance		125,000.00
Miscellaneous		27,081.40
Total	$	280,000.00

Item 14. Indemnification of Directors and Officers.

Section 102(b)(7) of the Delaware General Corporation Law ("DGCL") provides that a Delaware corporation, in its certificate of incorporation, may limit the personal liability of a director to the corporation or its stockholders for monetary damages for breach of fiduciary duties as a director, except for liability for any:

- transaction from which the director derived an improper personal benefit;
- act or omission not in good faith or that involved intentional misconduct or a knowing violation of law;
- unlawful payment of dividends or redemption of shares; or
- breach of the director's duty of loyalty to the corporation or its stockholders.

Under Section 145 of the DGCL, we can indemnify our directors and officers against liabilities they may incur in such capacities, including liabilities under the Securities Act of 1933, as amended (the "Securities Act"). Our certificate of incorporation (Exhibit 3.1 to this registration statement) provides that we must indemnify our directors and officers to the fullest extent permitted by law and requires us to pay expenses incurred in defending or other participating in any proceeding in advance of its final disposition upon our receipt of an undertaking by the director or officer to repay such advances if it is ultimately determined that the director or officer is not entitled to indemnification. Our certificate of incorporation further provides that rights conferred under such certificate of incorporation do not exclude any other right such persons may have or acquire under the certificate of incorporation, the bylaws, any statute, agreement, vote of stockholders or disinterested directors or otherwise.

The certificate of incorporation also provides that, pursuant to Delaware law, our directors shall not be liable for monetary damages for breach of the directors' fiduciary duty of care to us and our stockholders. This provision in the certificate of incorporation does not eliminate the duty of care, and in appropriate circumstances equitable remedies such as injunctive or other forms of non-monetary relief will remain available under Delaware law. In addition, each director will continue to be subject to liability for breach of the director's duty of loyalty to us for acts or omissions not in good faith or involving intentional misconduct, or knowing violations of law, for actions leading to improper personal benefit to the director, and for payment of dividends or approval of stock repurchases or redemptions that are unlawful under Delaware law. The provision also does not affect a director's responsibilities under any other law, such as the federal securities laws or state or federal environmental laws. We also intend to obtain directors' and officers' liability insurance pursuant to which our directors and officers are insured against liability for actions taken in their capacities as directors and officers.

In addition, we have entered into agreements to indemnify our directors and certain of our officers in addition to the indemnification provided for in the certificate of incorporation. These agreements, among other things, indemnify our directors and some of our officers for certain expenses (including attorney's fees), judgments, fines and settlement amounts incurred by such person in any action or proceeding, including any action by or in our right, on account of services by that person as a director or officer of our company or as a director or officer of our subsidiary, or as a director or officer of any other company or enterprise that the person provides services to at our request.

Item 15. Recent Sales of Unregistered Securities.

The information below lists all of the securities sold by us during the past three years which were not registered under the Securities Act:

On May 16, 2025, the Company received a notice of conversion with respect to its 350,000 shares of Series A Convertible Preferred Stock outstanding, These shares of preferred stock were issued to an investor in 2015 and 2016 and were convertible into 72,917 shares of common stock on such date.

Item 16. Exhibits and Financial Statement Schedules.

A list of exhibits to this registration statement is set forth in the Index to Exhibits as presented below.

INDEX TO EXHIBITS

Exhibit Number	Description of Document
1.1	Form of Underwriting Agreement*
2.1	Share Exchange Agreement dated as of June 8, 2006 among the Company, John S. Kovach and Lixte Biotechnology, Inc., filed as Exhibit 2.1 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on July 7, 2006 and incorporated herein by reference.
3.1	Certificate of Incorporation, as filed with the Delaware Secretary of State on May 24, 2005, filed as Exhibit 3.1 to the Company's Registration Statement on Form 10-SB, as filed with the Securities and Exchange Commission on August 3, 2005 and incorporated herein by reference.
3.2	Certificate of Amendment of Certificate of Incorporation, filed as Appendix A to the Company's Information Statement, as filed with the Securities and Exchange Commission on September 19, 2006 and incorporated herein by reference.
3.3	Certificate of Designations for the Company's Series A Convertible Preferred Stock, filed as Exhibit 4.01 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on March 18, 2015 and incorporated herein by reference.
3.4	Certificate of Amendment of Certificate of Designations of the Series A Convertible Preferred Stock, filed as Exhibit 3.4 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2015, as filed with the Securities and Exchange Commission on March 28, 2016 and incorporated herein by reference.
3.5	Amended and Restated Bylaws, filed as Exhibit 3.1 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on November 10, 2022 and incorporated herein by reference.
3.6	Certificate of Amendment of Certificate of Incorporation, filed as Exhibit 3.1 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on November 27, 2020 and incorporated herein by reference.

3.7	Certificate of Amendment to the Certificate of Incorporation of Lixte Biotechnology Holdings, Inc., filed as Exhibit 3.1 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on June 6, 2023 and incorporated herein by reference.
4.1	Description of Registrant's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934, as amended, filed as Exhibit 4.1 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2019, as filed with the Securities and Exchange Commission on March 25, 2020 and incorporated herein by reference.
4.2	Form of Public Common Stock Purchase Warrant included in Unit, filed as Exhibit 4.2 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on November 27, 2020 and incorporated herein by reference.
4.3	Form of Common Stock Purchase Warrant, filed as Exhibit 4.1 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on July 20, 2023 and incorporated herein by reference.
4.4	Form of Placement Agent Common Stock Purchase Warrant, filed as Exhibit 4.3 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on July 20, 2023 and incorporated herein by reference.
4.5	Form of Common Stock Purchase Warrant, filed as Exhibit 4.1 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on February 13, 2025 and incorporated herein by reference.
4.6	Form of Placement Agent Common Stock Purchase Warrant, filed as Exhibit 4.2 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on February 13, 2025 and incorporated herein by reference.
5.1	Opinion of TroyGould PC*
10.1	Master Agreement between Lixte Biotechnology Holdings, Inc. and Theradex Systems, Inc. dated January 12, 2010, filed as Exhibit 10.15 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2012, as filed with the Securities and Exchange Commission on March 15, 2013 and incorporated herein by reference.
10.2	Materials Cooperative Research and Development Agreement between Lixte Biotechnology Holdings, Inc. and the National Institute of Neurological Disorders and Stroke dated October 18, 2013, filed as Exhibit 10.16 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2013, as filed with the Securities and Exchange Commission on March 21, 2014 and incorporated herein by reference.
10.3	Collaboration Agreement between Lixte Biotechnology Holdings, Inc. and BioPharmaWorks LLC effective September 14, 2015, filed as Exhibit 10.01 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on September 18, 2015 and incorporated herein by reference.
10.4	Collaboration Agreement for an Investigator-Initiated Clinical Trial between Lixte Biotechnology Holdings, Inc. and the Spanish Sarcoma Group as of July 31, 2019 (certain portions of this exhibit have been omitted based on a request for confidential treatment filed by the Company with the Securities and Exchange Commission that was granted on September 19, 2019), filed as Exhibit 10.1 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on August 6, 2019 and incorporated herein by reference.

10.5	Employment Agreement Between the Company and Robert N. Weingarten, filed as Exhibit 10.02 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on August 18, 2020 and incorporated herein by reference.+
10.6	Employment Agreement Between the Company and Eric Forman, filed as Exhibit 10.02 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on July 17, 2020 and incorporated herein by reference.+
10.7	Amendment to Employment Agreement between the Company and Eric Forman, filed as Exhibit 10.21 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2020, as filed with the Securities and Exchange Commission on March 26, 2021.+

10.8	Second Amendment to Employment Agreement between the Company and Eric Forman, filed as Exhibit 10.15 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2022, as filed with the Securities and Exchange Commission on March 29, 2023 and incorporated herein by reference.+
10.9	Lixte Biotechnology Holdings, Inc. 2020 Stock Incentive Plan, filed as Exhibit 10.1 to the Company Current Report on Form 8-K, as filed with the Securities and Exchange Commission on July 17, 2020 and incorporated herein by reference.+
10.10	Lixte Biotechnology Holdings, Inc. 2020 Stock Incentive Plan (as amended), filed as Exhibit 10.1 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on November 28, 2023 and incorporated herein by reference.+
10.11	Development Collaboration Agreement by and between Lixte Biotechnology Holdings, Inc. and the Netherlands Cancer Institute, Amsterdam, and Oncode Institute, Utrecht, entered into on October 8, 2021 (certain portions of this Exhibit have been omitted), filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2021, as filed with the Securities and Exchange Commission on November 10, 2021 and incorporated herein by reference.
10.12	Insider Trading Policy, filed as Exhibit 10.21 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2022, as filed with the Securities and Exchange Commission on March 29, 2023 and incorporated herein by reference.
10.13	Compensation Clawback Policy, filed as Exhibit 10.16 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2023, as filed with the Securities and Exchange Commission on March 19, 2024 and incorporated herein by reference.+
10.14	Amendment to Contract between Lixte Biotechnology Holdings, Inc. and MRI Global effective April 17, 2022, filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2023, as filed with the Securities and Exchange Commission on May 10, 2023 and incorporated herein by reference.
10.15	Securities Purchase Agreement, filed as Exhibit 10.1 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on July 20, 2023 and incorporated herein by reference.
10.16	Employment Agreement between the Company and Bastiaan van der Baan effective September 26, 2023, filed as Exhibit 10.1 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on September 27, 2023 and incorporated herein by reference.
10.17	Amendment No. 1 to Development Collaboration Agreement by and between Lixte Biotechnology Holdings, Inc. and the Netherlands Cancer Institute, Amsterdam, and the Oncode Institute, Utrecht, entered into on October 8, 2021, filed as Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2023, as filed with the Securities and Exchange Commission on November 9, 2023 and incorporated herein by reference.

10.18	Amendment No. 2 to Development Collaboration Agreement by and between Lixte Biotechnology Holdings, Inc. and the Netherlands Cancer Institute, Amsterdam, and the Oncode Institute, Utrecht, entered into on October 13, 2023 (certain portions of this Exhibit have been omitted), filed as Exhibit 10.1 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on October 17, 2023 and incorporated herein by reference.
10.19	Termination letter between H. Lee Moffitt Cancer Center and Research Institute, Inc. and the Company dated October 4, 2023 and effective as of September 30, 2023, filed as Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2023, as filed with the Securities and Exchange Commission on November 9, 2023 and incorporated herein by reference.
10.20	Exclusive Patent License Agreement between Lixte Biotechnology, Inc. and the National Institute of Neurological Disorders and Stroke and the National Cancer Institute, each a component of the National Institute of Health, effective as of February 23, 2024, filed as Exhibit 10.1 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on February 26, 2024 and incorporated herein by reference.
10.21	Consulting Agreement between the Company and Dr. Jan Schellens dated as of May 31, 2024, filed as Exhibit 10.1 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on June 5, 2024 and incorporated herein by reference.+
10.22	Clinical Trial Agreement between the Company and the Netherlands Cancer Institute dated as of June 10, 2024, filed as Exhibit 10.1 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on June 14, 2024 and incorporated herein by reference.
10.23	Securities Purchase Agreement filed as Exhibit 10.1 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on February 13, 2025 and incorporated herein by reference.
10.24	Employment Agreement between the Company and Geordan Pursglove dated as of June 16, 2025, filed as Exhibit 10.1 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on June 17, 2025 and incorporated herein by reference.+
10.25	Amendment to Employment Agreement between the Company and Bastiaan van der Baan dated as of June 16, 2025, filed as Exhibit 10.2 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission on June 17, 2025 and incorporated herein by reference.+
10.26	Form of Registered Pre-Funded Warrant to Purchase Common Stock*
10.27	Form of Lock-Up Agreement*
10.28	Form of Underwriter Warrant to Purchase Common Stock*
21.1	Subsidiaries of the Registrant, filed as Exhibit 21.1 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2022, as filed with the Securities and Exchange Commission on March 29, 2023 and incorporated herein by reference.
23.1	Consent of Weinberg & Company, P.A., Independent Registered Public Accounting Firm*
23.2	Consent of TroyGould PC (included in Exhibit 5.1)
24.1	Power of Attorney (included on the signature line)*
99.1	Consent of Director Nominee – Peter Stazzone*
107	Filing Fee Table*

* Filed herewith.

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

Item 17. Undertakings.

The undersigned registrant hereby undertakes:

(a)(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 amount may be reflected in the form of prospectus filed with the SEC 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 the undertakings set forth in paragraphs (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) above 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 SEC by the registrant pursuant to section 13 or section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in this registration statement or are contained in a form of prospectus filed pursuant to Rule 424(b) that is part of this registration statement.

(2) That, for the purposes of determining any liability under the Securities Act of 1933, 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.

(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 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.

(b) The undersigned registrant hereby undertakes that, for the 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 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.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 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 Securities and Exchange Commission such indemnification is against public policy as expressed in the 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 Act and will be governed by the final adjudication of such issue.

(d) That,

(1) For purposes of determining any liability under the Securities Act of 1933, 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 of 1933 shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act of 1933, 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, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Pasadena, State of California, on June 17, 2025.

Lixte Biotechnology Holdings, Inc.

By: */s/ Geordan Pursglove*
Name: Geordan Pursglove
Title: Chief Executive Officer
(Principal Executive Officer)

POWER OF ATTORNEY

Each person whose signature appears below appoints Geordan Pursglove and Robert Weingarten, and each of them, each of whom may act without the joinder of the other, as their true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution for them and in their name, place and stead, in any and all capacities to sign any and all amendments (including post-effective amendments) to this registration statement (and to any registration statement filed pursuant to Rule 462 under the Securities Act of 1933, as amended), and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully to all intents and purposes as they might or would do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title(s)	Date
/s/ Geordan Pursglove Geordan Pursglove	Chief Executive Officer and Chairman of the Board of Directors (Principal Executive Officer)	June 17, 2025
/s/ Bastiaan van der Baan Bastiaan van der Baan	President, Chief Scientific Officer and Director	June 17, 2025
/s/ Robert Weingarten Robert Weingarten	Vice President and Chief Financial Officer (Principal Financial and Accounting Officer)	June 17, 2025
* Stephen Forman	Director	June 17, 2025
* Yun Yen	Director	June 17, 2025
* Rene Bernards	Director	June 17, 2025
* Regina Brown	Director	June 17, 2025

*By: */s/ Robert Weingarten,* Attorney-in-Fact

Exhibit 1.1

UNDERWRITING AGREEMENT

[●], 2025

Spartan Capital Securities, LLC
45 Broadway, 19th Floor New York, NY 10006

Ladies and Gentlemen:

Lixte Biotechnology Holdings, Inc., a Delaware corporation (the "**Company**"), agrees, subject to the terms and conditions in this agreement (this "**Agreement**"), to issue and sell to Spartan Capital Securities, LLC (the "**Underwriter**") an aggregate of [●] shares of Common Stock, $0.0001 par value per share of the Company (the "**Common Stock**") or pre-funded warrants (each, a "**Pre-funded Warrant**") to purchase one (1) share of Common Stock at an exercise price of $0.00001 The shares of Common Stock referred to in this Section are hereinafter referred to as the "**Closing Shares**" and the Pre-funded Warrants referred to in this Section are hereinafter referred to as the "**Closing Pre-funded Warrants**" and together with the Closing Shares, the "**Closing Securities"**. At the option of the Underwriter, the Company agrees, subject to the terms and conditions herein, to issue and sell additional Option Securities (as defined in Section 4.2 hereof). The Closing Shares and the Closing Pre-funded Warrants and Option Securities are herein referred to collectively as the "**Securities**". The number of Securities to be purchased by the Underwriter is set forth opposite its name in Schedule 4.1.2 hereto. Spartan Capital Securities, LLC has agreed to act as the Underwriter in connection with the offering and sale of the Securities.

1. **Definitions**.

1.1. "**Affiliate**" has the meaning set forth in Rule 405 under the Securities Act.

1.2. "**Applicable Time**" means [●]:00 [a.m./p.m.] Eastern Time on the date hereof.

1.3. "**Bona Fide Electronic Road Show**" means a "bona fide electronic road show" (as defined in Rule 433(h)(5) under the Securities Act) that the Company has made available without restriction by "graphic means" (as defined in Rule 405 under the Securities Act) to any person.

1.4. "**Business Day**" means a Calendar Day other than a Saturday, Sunday or any other Calendar Day which is a federal legal holiday in the United States or any Calendar Day on which the commercial banks in the City of New York are required by law or other governmental action to close, provided that the commercial banks in the City of New York shall not be deemed to be required to be closed due to a "stay at home," "shelter in place," "non-essential employee" or similar orders or restrictions or the closure of any physical branch locations at the direction of any governmental authority so long as the electronic funds transfer systems (including for wire transfers) of commercial banks in the City of New York generally are open for use by customers on such Calendar Day.

1.5. "**Calendar Day**" means each and every day of the week (Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday).

1.6. "**Commission**" means the United States Securities and Exchange Commission.

1.1. "**Company Counsel**" means TroyGould PC, with office at 1801 Century Park East, 16th Floor Los Angeles, CA 90067.

1.2. "**Exchange Act**" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

1.3. "**Exempt Issuance**" means (i) any conventional bank loans that are not convertible into, or exercisable or exchangeable for, shares of Common Stock or Common Stock Equivalents and do not involve any issuance of any shares of Common Stock or Common Stock Equivalents or other security of the Company in connection therewith; (ii) shares of Common Stock or options issued to employees, officers or directors of the Company pursuant to the Company's equity incentive plans or pursuant to the compensation agreements previously authorized by the Board of Directors; (iii) securities issued upon the exercise or exchange of or conversion of any Securities issued hereunder and/or other securities exercisable or exchangeable for or convertible into shares of Common Stock issued and outstanding on the date of this Agreement, provided that such securities have not been amended since the date of this Agreement to increase the number of such securities or to decrease the exercise price, exchange price or conversion price of such securities (other than in connection with stock splits or combinations) or to extend the term of such securities; and (iv) securities issued pursuant to acquisitions or strategic transactions (whether by merger, consolidation, purchase of equity, purchase of assets, reorganization or otherwise) approved by a majority of the disinterested directors of the Company, provided that such securities are issued as "restricted securities" (as defined in Rule 144) and carry no registration rights that require or permit the filing of any registration statement in connection therewith during the Standstill Period, and provided that any such issuance shall only be to a Person (or to the equityholders of a Person) which is, itself or through its subsidiaries, an operating company or an owner of an asset in a business synergistic with the business of the Company and shall provide to the Company additional benefits in addition to the investment of funds, but shall not include a transaction in which the Company is issuing securities primarily for the purpose of raising capital or to an entity whose primary business is investing in securities.

1.4. "**Final Prospectus**" means the prospectus in the form first filed with the Commission pursuant to and within the time limits described in Rule 424(b) under the Securities Act.

1.5. "**Free Writing Prospectus**" has the meaning set forth in Rule 405 under the Securities Act.

1.6. "**Indebtedness**" means (a) any liabilities for borrowed money or amounts owed in excess of $50,000 in aggregate (other than trade accounts payable incurred in the ordinary course of business), (b) all guaranties, endorsements and other contingent obligations in respect of indebtedness of others, whether or not the same are or should be reflected in the Company's consolidated balance sheet (or the notes thereto), except guaranties by endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of business; and (c) the present value of any lease payments in excess of $50,000 in aggregate due under leases required to be capitalized in accordance with GAAP.

1.7. "**Investment Company Act**" means the Investment Company Act of 1940, as amended, and the rules and regulations promulgated thereunder.

1.8. "**Issuer Free Writing Prospectus**" means an "issuer free writing prospectus" (as defined in Rule 433(h)(1) under the Securities Act).

1.9. "**Person**" means an individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

1.10. "**Preliminary Prospectus**" means any preliminary prospectus included in the Registration Statement prior to the time at which the Commission declared the

Registration Statement effective.

1.11. "**Pricing Disclosure Package**" means the Preliminary Prospectus collectively with this Agreement (including documents attached hereto or incorporated by reference herein) and the documents and pricing information set forth in Schedule 1.11 hereto.

1.12. "**Prospectus Delivery Period**" means such period of time after the first date of the public offering of the Closing Securities as in the opinion of Underwriter Counsel a prospectus relating to the Closing Securities is required by law to be delivered (or required to be delivered but for Rule 172 under the Securities Act) in connection with sales of the Closing Securities by the Underwriter or dealer.

1.13. "**Registration Statement**" means (a) the registration statement on Form S-1 (File No. 333-[●]), including a prospectus, registering the offer and sale of the Securities under the Securities Act as amended at the time the Commission declared it effective, including each of the exhibits, financial statements and schedules thereto, (b) any Rule 430A Information, and (c) any Rule 462(b) Registration Statement, including in each case any documents incorporated by reference therein.

1.14. "**Rule 430A Information**" means the information deemed, pursuant to Rule 430A under the Securities Act, to be part of the Registration Statement at the time the Commission declared the Registration Statement effective.

1.15. "**Rule 462(b) Registration Statement**" means an abbreviated registration statement to register the offer and sale of additional Securities pursuant to Rule 462(b) under the Securities Act.

1.16. "**Sarbanes-Oxley Act**" means the Sarbanes-Oxley Act of 2002, as amended, and the rules and regulations promulgated thereunder.

1.17. "**Securities Act**" means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

1.18. "**Standstill Period**" has the meaning set forth in Section 5.9.1 hereof.

1.19. "**Testing-the-Waters Communication**" means any oral or Written Communication with potential investors undertaken in reliance on Section 5(d) of the Securities Act and Rule 163B thereunder.

1.20. "**Underwriter Counsel**" means Kaufman & Canoles, P.C., with office at Two James Center, 14th Floor, 1021 E. Cary St., Richmond, VA 23219.

1.21. "**Written Communication**" has the meaning set forth in Rule 405 under the Securities Act.

1.22. "**Written Testing-the-Waters Communications**" means any Testing-the-Waters Communication that is a Written Communication.

2. **Representations and Warranties of the Company**. The Company hereby represents and warrants to, and agrees with, the Underwriter that the following matters are true and accurate and do not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. Any certificate signed by an officer of the Company and delivered to the Underwriter or to Underwriter Counsel shall be deemed to be a representation and warranty by the Company to the Underwriter as to the matters set forth therein.

2.1. **Registration Statement.** The Company has prepared and filed the Registration Statement with the Commission under the Securities Act. The Commission has declared the Registration Statement effective under the Securities Act and the Company has not as of the date of this Agreement filed a post-effective amendment to the Registration Statement. The Commission has not issued any order suspending the effectiveness of the Registration Statement or any order preventing or suspending the use of the Registration Statement, the Final Prospectus, any Preliminary Prospectus, any Issuer Free Writing Prospectus or any Testing-the-Waters Communication, and no proceedings for such purpose or pursuant to Section 8A of the Securities Act have been initiated, are pending before or, to the Company's knowledge, threatened by the Commission.

2.1.1. The Registration Statement, at the time it became effective, did not contain, and any post-effective amendment thereto, as of the effective date of such amendment, will not contain, any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading; provided that the Company makes no representation or warranty with respect to any statements or omissions made in reliance upon and in conformity with information relating to the Underwriter furnished to the Company in writing by the Underwriter expressly for use in the Registration Statement (including any post-effective amendment thereto), the Pricing Disclosure Package, the Final Prospectus (including any amendments or supplements thereto), any Preliminary Prospectus, any Issuer Free Writing Prospectus or any Testing-the-Waters Communication, it being understood and agreed that the only such information furnished by the Underwriter consists of the information described in Section 9.3 hereof (collectively, the "**Underwriter Information**").

2.1.2. Each of the Registration Statement and any post-effective amendment thereto, at the time it became effective and at the date hereof, complied and will comply in all material respects with the Securities Act.

2.2. **Pricing Disclosure Package**. The Pricing Disclosure Package, as of the Applicable Time, did not, and as of the Closing Date (as defined below) and as of any Additional Closing Date (as defined below), as the case may be, will not, contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation or warranty with respect to any statements or omissions made in reliance upon and in conformity with the Underwriter Information.

2.3. **Final Prospectus**.

2.3.1. Each of the Final Prospectus and any amendments or supplements thereto, as of its date, as of the time it is filed with the Commission pursuant to Rule 424(b) under the Securities Act, as of the Closing Date and as of any Additional Closing Date, as the case may be, will not contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation or warranty with respect to any statements or omissions made in reliance upon and in conformity with the Underwriter Information.

2.3.2. Each of the Final Prospectus and any amendments or supplements thereto, at the time it is filed with the Commission pursuant to Rule 424(b) under the Securities Act, as of the Closing Date and as of any Additional Closing Date, as the case may be, will comply in all material respects with the Securities Act.

2.4. **Preliminary Prospectuses**.

2.4.1. Each Preliminary Prospectus, when considered together with any amendments or supplements thereto, as of the time it was filed with the Commission pursuant to Rule 424(a) under the Securities Act, if any, did not contain any untrue statement of a material fact or omit to state a material fact necessary in order to make

the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation or warranty with respect to any statements or omissions made in reliance upon and in conformity with the Underwriter Information.

2.4.2. Each Preliminary Prospectus, when considered together with any amendments or supplements thereto, at the time it was filed with the Commission pursuant to Rule 424(a) under the Securities Act, if any, complied in all material respects with the Securities Act.

2.5. **Issuer Free Writing Prospectuses**.

2.5.1. Each Issuer Free Writing Prospectus, when considered together with the Preliminary Prospectus accompanying, or delivered prior to the delivery of, such Issuer Free Writing Prospectus, did not, as of the date of such Issuer Free Writing Prospectus, and will not, as of the Closing Date and as of any Additional Closing Date, as the case may be, contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation or warranty with respect to any statements or omissions made in reliance upon and in conformity with the Underwriter Information.

2.5.2. Each Issuer Free Writing Prospectus, at the time of filing with the Commission, complied or will comply in all material respects with the Securities Act.

2.5.3. The Company has filed, or will file, with the Commission, within the time period specified in Rule 433(d) under the Securities Act, any Free Writing Prospectus it is required to file pursuant to Rule 433(d) under the Securities Act. The Company has made available any Bona Fide Electronic Road Show used by it in compliance with Rule 433(d)(8)(ii) under the Securities Act such that no filing of any "road show" (as defined in Rule 433(h) under the Securities Act) ("**Road Show**") is required in connection with the offering of the Securities.

2.5.4. Except for the Issuer Free Writing Prospectuses, if any, set forth in Schedule 2.5.4 hereto and electronic road shows, if any, each furnished to the Underwriter before first use, the Company has not used, authorized the use of, referred to or participated in the planning for use of, and will not, without the prior consent of the Underwriter, use, authorize the use of, refer to or participate in the planning for use of, any Free Writing Prospectus.

2.6. **Testing-the-Waters Communications**. The Company has not (x) alone engaged in any Testing-the-Waters Communication other than Testing-the-Waters Communications with the consent of the Underwriter or any underwriter that the Company has previously identified to the Underwriter with entities that are qualified institutional buyers within the meaning of Rule 144A under the Act or institutions that are accredited investors within the meaning of Rule 501 under the Act, and (y) authorized anyone other than the Underwriters, or any underwriter that the Company has previously identified to the Underwriter, to engage in Testing-the-Waters Communications.

2.7. **No Other Disclosure Materials**. Other than the Registration Statement, the Pricing Disclosure Package, the Final Prospectus and the Road Show, the Company (including its agents and representatives, other than the Underwriter or any underwriter that the Company has previously identified to the Underwriter, as to which no representation or warranty is given) has not, directly or indirectly, distributed, prepared, used, authorized, approved or referred to, and will not distribute, prepare, use, authorize, approve or refer to, any offering material in connection with the offering and sale of the Securities.

2.8. **Ineligible Issuer**. At the time of filing of the registration statement on Form S-1 (File No. 333-[●]) registering the offer and sale of the Securities submitted to the Commission on and any amendment thereto and at the date hereof, the Company was not and is not an "ineligible issuer" (as defined in Rule 405 under the Securities Act).

2.9. **Smaller Reporting Company**. From the time of initial filing of the Registration Statement with the Commission (or, if earlier, the first date on which the Company engaged directly or through any person authorized to act on its behalf in any Testing-the-Waters Communication) through the date hereof, the Company has been and is a "smaller reporting company," as defined in Rule 12b-2 under the Exchange Act.

2.10. **Due Authorization**. The Company has full right, power and authority to execute and deliver this Agreement and to perform its obligations hereunder; and all action required to be taken for the due and proper authorization, execution and delivery by it of this Agreement and the underwriter's warrant agreement (the "**Underwriter's Warrant Agreement**") and the consummation by it of the transactions contemplated hereby and thereby has been duly and validly taken.

2.11. **Underwriting Agreement**. Each of this Agreement and the Underwriter's Warrant Agreement has been duly authorized, executed and delivered by the Company and each, assuming the due authorization, execution and delivery by the other parties hereto and thereto, constitutes the legal, valid and binding obligation of the Company, enforceable against the Company in accordance with its terms, except as (i) the enforcement may be limited by bankruptcy, insolvency, fraudulent transfer, reorganization, moratorium or other similar laws relating to or affecting the rights and remedies of creditors generally or by general equitable principles (whether considered in a proceeding at law or in equity) relating to enforceability and (ii) rights to indemnification and contribution hereunder may be limited by applicable law and public policy considerations.

2.12. **No Material Adverse Change**. Except as otherwise disclosed in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus (in each case exclusive of any amendment or supplement thereto), since the date of the most recent financial statements included or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus: (i) there has been no material adverse change, or any development that could result in a material adverse change, in or affecting the condition (financial or otherwise), earnings, business, properties, management, financial position, stockholders' equity, or results of operations, whether or not arising from transactions in the ordinary course of business, of the Company and its subsidiaries, considered as a whole; (ii) there has been no change in the share capital (other than (A) the issuance of Shares upon the exercise or settlement (including any "net" or "cashless" exercises or settlements) of stock options, restricted stock units or warrants described as outstanding, (B) the grant of options and awards under existing equity incentive plans, or (C) the repurchase of shares of Common Stock by the Company, which were issued pursuant to the early exercise of stock options by option holders and are subject to repurchase by the Company, in each case, as described in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus), or material change in the short-term debt or long-term debt of the Company or any of its subsidiaries, considered as a whole; and (iii) the Company and its subsidiaries, considered as a whole, have not incurred any material liability or obligation, indirect, direct or contingent (whether or not in the ordinary course of business); nor entered into any transaction or agreement (whether or not in the ordinary course of business) that is material to the Company and its subsidiaries, considered as a whole; and (iv) there has been no dividend or distribution of any kind declared, set aside for payment, paid or made by the Company or, except for dividends paid to the Company or other subsidiaries of the Company, any of its subsidiaries on any class of capital stock or repurchase or redemption by the Company or any of its subsidiaries of any class of capital stock.

2.13. **Organization and Good Standing of the Company and its Subsidiaries**. The Company and each of its subsidiaries have been duly incorporated and are validly existing and in good standing under the laws of their respective jurisdictions of organization, are duly qualified to do business and are in good standing in each jurisdiction in which their respective ownership or lease of property or the conduct of their respective businesses requires such qualification, and have all power and authority (corporate and other) necessary to own, lease or hold their respective properties and to conduct the businesses in which they are engaged as described in the

Registration Statement, the Pricing Disclosure Package and the Final Prospectus, except where the failure to be in good standing, to be so qualified or to have such power or authority could not, individually or in the aggregate, have a material adverse effect on the condition (financial or otherwise), earnings, business, properties, management, financial position, stockholders' equity, or results of operations of the Company and its subsidiaries, considered as a whole, or adversely affect the performance by the Company of its obligations under this Agreement (a "**Material Adverse Effect**").

2.14. **Capitalization**. The capitalization of the Company is as set forth in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus under the heading "Capitalization". All of the outstanding capital stock of the Company has been duly authorized and validly issued and is fully paid and non-assessable. The Securities and the Underwriter's Securities (as defined in Section 4.2.5) have been duly authorized and, when issued and paid for as contemplated herein, will be validly issued, fully paid and non-assessable; the holders thereof are not and will not be subject to personal liability by reason of being such holders; the Securities and the Underwriter's Securities are not and will not be subject to the preemptive rights of any holders of any security of the Company or similar contractual rights granted by the Company; and all corporate action required to be taken for the authorization, issuance and sale of the Securities and the Underwriter's Securities has been duly and validly taken. When paid for and issued in accordance with the Underwriter's Warrant Agreement, the Underlying Shares will be validly issued, fully paid and non-assessable; the holders thereof are not and will not be subject to personal liability by reason of being such holders; the Underlying Shares are not and will not be subject to the preemptive rights of any holders of any security of the Company or similar contractual rights granted by the Company; and all corporate action required to be taken for the authorization, issuance and sale of the Underwriter's Warrant Agreement has been duly and validly taken. None of the outstanding shares of Common Stock of the Company were issued in violation of any preemptive rights, rights of first refusal or other similar rights to subscribe for or purchase securities of the Company. Except as disclosed in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus, there are no authorized or outstanding options, warrants, preemptive rights, rights of first refusal or other rights to acquire, or instruments convertible into or exchangeable or exercisable for, any Shares of, or other equity interest in, the Company or any of its subsidiaries. All of the outstanding shares of, or other equity interest in, each of the Company's subsidiaries (i) have been duly authorized and validly issued, (ii) are fully paid and non-assessable and (iii) are owned by the Company, directly or through the Company's subsidiaries, free and clear of any security interest, mortgage, pledge, lien, encumbrance, charge, claim or restriction on voting or transfer (collectively, "**Liens**").

2.15. **Common Stock Incentive Plans**. With respect to the Common Stock options (the "**Stock Options**") granted pursuant to the Common Stock-based compensation plans of the Company and its subsidiaries (the "**Company Common Stock Incentive Plans**"), (i) each Stock Option intended to qualify as an "incentive stock option" under Section 422 of the Internal Revenue Code of 1986, as amended (the "**Code**"), so qualifies, (ii) each grant of a Stock Option was duly authorized by all necessary corporate action, including, as applicable, approval by the board of directors of the Company (or a duly constituted and authorized committee thereof) and any required stockholders approval by the necessary number of votes or written consents, and the award agreement governing such grant (if any), to the Company's knowledge, was duly executed and delivered by each party thereto, (iii) each such grant was made in all material respects in accordance with the terms of the Company Common Stock Incentive Plans, and (iv) each such grant was properly accounted for in accordance with United States generally accepted accounting principles applied on a consistent basis during the periods involved ("**GAAP**") in the financial statements (including the related notes) of the Company.

2.16. **No Violation or Default**. Neither the Company nor any of its subsidiaries is: (i) in violation of its charter, by-laws or similar organizational documents; (ii) in default, and no event has occurred that, with notice or lapse of time or both, would constitute such a default, in the due performance or observance of any term, covenant, condition or other obligation contained in any indenture, mortgage, deed of trust, loan agreement, contract, undertaking or other agreement or instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any property, right or asset of the Company or any of its subsidiaries is subject; or (iii) in violation of any law or statute applicable to the Company or any of its subsidiaries or any judgment, order, rule or regulation of any court or arbitrator or governmental or regulatory authority having jurisdiction over the Company or any of its subsidiaries, or any of their respective properties or assets, except, in the case of clauses (ii) and (iii) above, for any such default or violation that would not, individually or in the aggregate, have a Material Adverse Effect.

2.17. **No Conflicts**. None of (i) the execution, delivery and performance of this Agreement by the Company, (ii) the issuance, sale and delivery of the Closing Securities or the Option Securities, (iii) the application of the proceeds of the offering as described under "Use of Proceeds" in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus, or (iv) the consummation of the transactions contemplated herein will: (x) result in any violation of the terms or provisions of the charter, by-laws or similar organizational documents of the Company or any of its subsidiaries; (y) conflict with, result in a breach or violation of, or require the approval of stockholders, members or partners or any approval or consent of any persons under, any of the terms or provisions of, constitute a default under, result in the termination, modification, or acceleration of, or result in the creation or imposition of any lien, charge or encumbrance upon any property, right or asset of the Company or any of its subsidiaries pursuant to, any indenture, mortgage, deed of trust, loan agreement, note agreement, contract, undertaking or other agreement, obligation, condition, covenant or instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any property, right or asset of the Company or any of its subsidiaries is subject; or (z) result in the violation of any law, statute, judgment, order, rule, decree or regulation applicable to the Company or any of its subsidiaries of any court, arbitrator, governmental or regulatory authority, agency or body having jurisdiction over the Company or any of its subsidiaries or any of their respective properties or assets.

2.18. **No Consents Required**. No consent, approval, authorization, order, filing, registration, license or qualification of or with any court, arbitrator, or governmental or regulatory authority, agency, or body is required for (i) the execution, delivery and performance by the Company of this Agreement; (ii) the issuance, sale and delivery of the Securities ; or (iii) the consummation of the transactions contemplated herein, except for such consents, approvals, authorizations, orders, filings, registrations or qualifications as (x) have already been obtained or made and are still in full force and effect, (y) may be required by FINRA and the Nasdaq Capital Market, and (z) may be required under applicable state securities laws in connection with the purchase, distribution and resale of the Securities by the Underwriter.

2.19. **Independent Accountants**. Weinberg & Company, P.A., with offices at 1925 Century Park East, Suite 1120 Los Angeles, CA 90067, which expressed its opinion with respect to the financial statements (which term as used in this Agreement includes the related notes thereto) and supporting schedules included in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus, is an independent registered public accounting firm with respect to the Company and its subsidiaries within the meaning of the rules and regulations of the Commission and the Public Company Accounting Oversight Board and as required by the Securities Act.

2.20. **Financial Statements and Other Financial Data**. The financial statements (including the related notes thereto), together with the supporting schedules, included in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus comply in all material respects with the applicable requirements of the Securities Act and present fairly the consolidated financial position of the entities to which they relate as of and at the dates indicated and the results of their operations and cash flows for the periods specified. Such financial statements, notes and schedules have been prepared in conformity with GAAP applied on a consistent basis throughout the periods involved, except as may be expressly stated in the notes thereto and except, in the case of unaudited interim financial statements, subject to normal year end audit adjustments and the exclusion of certain footnotes as permitted by the applicable rules of the Commission. The financial data set forth in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus under the captions "Capitalization" present fairly the information set forth therein on a basis consistent with that of the audited financial statements included in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus.

2.21. **Statistical and Market-Related Data**. The statistical and market-related data included in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus are based on or derived from sources that the Company reasonably and in good faith believes to be accurate and reliable in all material respects.

2.22. **Forward-Looking Statements**. No forward-looking statement (within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act) included in the Registration Statement, the Pricing Disclosure Package or the Final Prospectus has been made or reaffirmed without a reasonable basis or has been disclosed other than in good faith.

2.23. **Legal Proceedings**. Except as disclosed in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus, (i) there are no legal, governmental or regulatory investigations, actions, demands, claims, suits, arbitrations, inquiries or proceedings (collectively, "**Actions**") pending to which the Company or any of its subsidiaries is or may be a party or to which any property, right or asset of the Company or any of its subsidiaries is or may be the subject that, individually or in the aggregate, if determined adversely to the Company or any of its subsidiaries, could have a Material Adverse Effect; and (ii) to the knowledge of the Company, no such Actions are threatened or contemplated by any governmental or regulatory authority or by others.

2.24. **Labor Disputes**. No labor disturbance by or dispute with the employees of the Company or any of its subsidiaries exists or, to the knowledge of the Company, is threatened or contemplated that could, individually or in the aggregate, have a Material Adverse Effect.

2.25. **Intellectual Property Rights**. (i) The Company and its subsidiaries own or have the right to use all patents, patent applications, trademarks, service marks, trade names, and other source indicators and registrations and applications for registration thereof, domain name registrations, copyrights and registrations and applications for registration thereof, technology and know-how, trade secrets, and all other intellectual property and related proprietary rights (collectively, "**Intellectual Property Rights**") necessary to conduct their respective businesses; (ii) other than as disclosed in the Prospectus, neither the Company nor any of its subsidiaries has received any notice of infringement, misappropriation or other conflict with (and neither the Company nor any of its subsidiaries is otherwise aware of any infringement, misappropriation or other conflict with) the Intellectual Property Rights of any other person, except for such infringement, misappropriation or other conflict as could not have a Material Adverse Effect; and (iii) to the knowledge of the Company, the Intellectual Property Rights of the Company and its subsidiaries are not being infringed, misappropriated or otherwise violated by any person.

2.26. **Licenses and Permits**. (i) The Company and its subsidiaries possess such valid and current certificates, authorizations, approvals, licenses and permits (collectively, "**Authorizations**") issued by, and have made all declarations, amendments, supplements and filings with, the appropriate state, federal or foreign regulatory agencies or bodies necessary to own, lease and operate their respective properties and to conduct their respective businesses as set forth in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus; (ii) all such Authorizations are valid and in full force and effect and the Company and its subsidiaries are in compliance with the terms and conditions of all such Authorizations; and (iii) neither the Company nor any of its subsidiaries has received notice of any revocation, termination or modification of, or non-compliance with, any such Authorization or has any reason to believe that any such Authorization will not be renewed in the ordinary course, except where, in the case of clauses (i), (ii) and (iii), the failure to possess, make or obtain such Authorizations (by possession, declaration or filing) could not, individually or in the aggregate, have a Material Adverse Effect.

2.27. **Title to Property**. The Company and its subsidiaries have good and marketable title to, or have valid and enforceable rights to lease or otherwise use, all items of real property and personal property (other than with respect to Intellectual Property Rights, which is addressed exclusively in Section 2.25) that are material to the respective businesses of the Company and its subsidiaries, in each case, free and clear of all liens, encumbrances, claims, and defects and imperfections of title, except such liens, encumbrances, claims, defects and imperfections as (i) are disclosed in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus, or (ii) do not materially affect the value of such property and do not materially interfere with the use made or proposed to be made of such property by the Company and its subsidiaries. The Company and its subsidiaries have good and marketable title to, or have valid and enforceable rights to lease or otherwise use, all items of real and personal property that are material to the respective businesses of the Company and its subsidiaries, in each case, free and clear of all liens, encumbrances, claims and defects and imperfections of title, except such liens, encumbrances, claims, defects and imperfections as (i) are disclosed in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus, or (ii) do not materially affect the value of such property and do not materially interfere with the use made or proposed to be made of such property by the Company and its subsidiaries. All items of real and personal property held under lease by the Company and its subsidiaries are held under valid, subsisting and enforceable leases, with such exceptions as do not materially interfere with the use made or proposed to be made of such property by the Company and its subsidiaries.

2.28. **Taxes**. The Company and each of its subsidiaries have filed all federal, state, local and foreign tax returns required to be filed through the date hereof or have timely requested extensions thereof and have paid all taxes required to be paid thereon (except as currently being contested in good faith and for which reserves required by GAAP have been created in the financial statements of the Company). The charges, accruals and reserves in respect of any income and other tax liability in the financial statements of the Company referred to in Section 2.20 are adequate, in accordance with GAAP principles, to meet any assessments for any taxes of the Company accruing through the end of the last period specified in such financial statements.

2.29. **Solvency**. Based on the consolidated financial condition of the Company as of the Closing Date, after giving effect to the receipt by the Company of the proceeds from the sale of the Closing Securities hereunder, (i) the fair saleable value of the Company's assets exceeds the amount that will be required to be paid on or in respect of the Company's existing debts and other liabilities (including known contingent liabilities) as they mature, (ii) the Company's assets do not constitute unreasonably small capital to carry on its business as now conducted and as proposed to be conducted including its capital needs taking into account the particular capital requirements of the business conducted by the Company, consolidated and projected capital requirements and capital availability thereof, and (iii) the current cash flow of the Company, together with the proceeds the Company would receive, were it to liquidate all of its assets, after taking into account all anticipated uses of the cash, would be sufficient to pay all amounts on or in respect of its liabilities when such amounts are required to be paid. The Company does not intend to incur debts beyond its ability to pay such debts as they mature (taking into account the timing and amounts of cash to be payable on or in respect of its debt). The Company has no knowledge of any facts or circumstances which lead it to believe that it will file for reorganization or liquidation under the bankruptcy or reorganization laws of any jurisdiction within one year after the Closing Date. The Registration Statement sets forth as of the date hereof all outstanding secured and unsecured Indebtedness of the Company or any Subsidiary, or for which the Company or any Subsidiary has commitments. Neither the Company nor any Subsidiary is in default with respect to any Indebtedness.

2.30. **Investment Company Act**. Neither the Company nor any of its subsidiaries is or, after giving effect to the offer and sale of the Securities and the application of the proceeds therefrom as described under "Use of Proceeds" in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus, will be required to register as an "investment company" (as defined in the Investment Company Act).

2.31. **Insurance**. The Company and its subsidiaries are insured by recognized, financially sound institutions in such amounts, with such amounts, with such deductibles and covering such losses and risks as the Company reasonably believes to be adequate for the conduct of their respective businesses and the value of their respective properties and as is prudent and customary for companies engaged in similar businesses in similar industries. All insurance policies and fidelity or surety bonds insuring the Company and its subsidiaries or their respective businesses, assets, employees, officers and directors are in full force and effect; the Company and its subsidiaries are in compliance with the terms of such policies in all material respects; neither the Company nor any of its subsidiaries has received notice from any insurer or agent of such insurer that capital improvements or other expenditures are required to be made in order to continue such insurance; and neither the Company nor any of its subsidiaries has been refused any insurance coverage sought or applied for. There are no claims by the Company or any of its subsidiaries under any such policy as to which any insurer is denying liability or defending under a reservation of rights clause; and neither the Company nor any of its subsidiaries has any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business at a cost that could not have a Material Adverse Effect.

2.32. **No Stabilization or Manipulation**. None of the Company, nor its Affiliates, or, to the knowledge of the Company, any person acting on its or any of their behalf (other than the Underwriter, as to which no representation or warranty is given) has taken, directly or indirectly, any action designed to or that has constituted or that could reasonably be expected to cause or result in the stabilization or manipulation of the price of any securities of the Company. The Company acknowledges that the Underwriter may engage in passive market making transactions in the Common Stock on the Nasdaq Capital Market (the "**Exchange**") in accordance with Regulation M under the Exchange Act ("**Regulation M**").

2.33. **Compliance with the Sarbanes-Oxley Act**. The Company and, to the knowledge of the Company, its officers and directors, in their capacities as such, are and have been in compliance with all applicable provisions of the Sarbanes-Oxley Act.

2.34. **Accounting Controls**. The Company and its subsidiaries maintain systems of "internal control over financial reporting" (as defined in Rule 13a-15(f) of the Exchange Act) that comply with the requirements of the Exchange Act and have been designed by, or under the supervision of, their principal executive and principal financial officers, or persons performing similar functions, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP. The Company and its subsidiaries maintain internal accounting controls sufficient to provide reasonable assurance that (i) transactions are executed in accordance with management's general or specific authorizations; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset accountability; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. Other than as disclosed in the Registration Statement, the Company maintains a system of internal control over financial reporting and the Company is not aware of any other material weaknesses in its internal control over financial reporting (whether or not remediated). Other than as disclosed in the Registration Statement, since the date of the most recent balance sheet included in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus, (x) the Company's auditors and the board of directors of the Company have not been advised of (A) any new significant deficiencies or material weaknesses in the design or operation of the internal control over financial reporting of the Company and its subsidiaries which could adversely affect the Company's ability to record, process, summarize, and report financial data; or (B) any fraud, whether or not material, that involves management or other employees who have a role in the internal control over financial reporting of the Company or its subsidiaries; and (y) there have been no significant changes in the internal control over financial reporting of the Company or its subsidiaries or in other factors that could significantly affect, such internal control over financial reporting, including any corrective actions with regard to significant deficiencies or material weaknesses, since the respective dates as of which information is given in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus.

2.35. **Disclosure Controls and Procedures**. The Company and its subsidiaries have established and maintain disclosure controls and procedures (as such term is defined in Rule 13a-15(e) under the Exchange Act) that are designed to comply with the requirements of the Exchange Act; such disclosure controls and procedures are designed to ensure that information required to be disclosed by the Company and its subsidiaries in the reports they file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Commission's rules and forms, including controls and procedures designed to ensure that such information is accumulated and communicated to the Company's management as appropriate to allow timely decisions regarding required disclosure; and such disclosure controls and procedures are effective to perform the functions for which they were established.

2.36. **Compliance with Environmental Laws**. The Company and each of its subsidiaries (i) are, and at all times prior hereto were, in compliance with all Environmental Laws (as defined below) applicable to such entity, which compliance includes, without limitation, obtaining, maintaining and complying with all permits and authorizations and approvals required by Environmental Laws to conduct their respective businesses; and (ii) have not received notice or otherwise have knowledge of any actual or alleged violation of Environmental Laws, or of any actual or potential liability for or other obligation concerning the presence, disposal or release of hazardous or toxic substances or wastes, pollutants or contaminants, and, except as described in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus, (x) there are no proceedings that are pending, or known to be contemplated, against the Company or any of its subsidiaries under Environmental Laws, other than such proceedings regarding which would not, individually or in the aggregate, have a Material Adverse Effect; (y) to the knowledge of the Company, none of the Company or any of its subsidiaries is aware of any issues regarding compliance with Environmental Laws, including any pending or proposed Environmental Laws, or liabilities or other obligations under Environmental Laws or concerning hazardous or toxic substances or wastes, pollutants or contaminants, that could reasonably be expected to have a material effect on the capital expenditures, earnings or competitive position of the Company and its subsidiaries; and (z) none of the Company or any of its subsidiaries anticipates material capital expenditures relating to Environmental Laws. As used herein, the term "**Environmental Laws**" means any laws, regulations, ordinances, rules, orders, judgments, decrees, permits or other legal requirements of any governmental authority, including, without limitation, any international, foreign, national, state, provincial, regional, or local authority, relating to pollution, the protection of human health or safety, the environment, or natural resources, or to the use, handling, storage, manufacturing, transportation, treatment, discharge, disposal or release of hazardous or toxic substances or wastes, pollutants or contaminants.

2.37. **ERISA**. Each "employee benefit plan" (within the meaning of Section 3(3) of the Employee Retirement Security Act of 1974, as amended ("**ERISA**")) for which the Company or any member of its "Controlled Group" (defined as any organization which is a member of a controlled group of corporations within the meaning of Section 414 of the Code) would have any liability (each, a "**Plan**") complies in form with the requirements of all applicable statutes, rules and regulations including ERISA and the Code, and has been maintained and administered in substantial compliance with its terms and with the requirements of all applicable statutes, rules and regulations including ERISA and the Code; (ii) with respect to each Plan subject to Title IV of ERISA or Section 302 of ERISA or Section 412 and 430 of the Code (A) no "reportable event" (within the meaning of Section 4043(c) of ERISA) has occurred or is reasonably expected to occur, (B) no failure to satisfy the minimum funding standard (within the meaning of Section 302 of ERISA or Section 412 and 430 of the Code), whether or not waived, has occurred or is reasonably expected to occur, (C) the fair market value of the assets under each Plan (excluding for these purposes accrued but unpaid contributions) exceeds the present value of all benefits accrued under such Plan (determined based on those assumptions used to fund such Plan) and (D) neither the Company or any member of its Controlled Group has incurred, or reasonably expects to incur, any liability under Title IV of ERISA (other than contributions to the Plan or premiums to the Pension Benefit Guaranty Corporation in the ordinary course and without default) in respect of a Plan (including a "multiemployer plan", within the meaning of Section 4001(a)(3) of ERISA); (iii) each Plan that is intended to be qualified under Section 401(a) of the Code is so qualified and nothing has occurred, whether by action or by failure to act, which would cause the loss of such qualification; and (iv) no prohibited transaction, within the meaning of Section 406 of ERISA or Section 4975 of the Code, has occurred with respect to any Plan excluding transactions to which a statutory or administrative prohibited transaction exemption applies.

2.38. **FDA**. As to each product subject to the jurisdiction of the U.S. Food and Drug Administration ("**FDA**") under the Federal Food, Drug and Cosmetic Act, as amended, and the regulations thereunder ("**FDCA**") that is manufactured, packaged, labeled, tested, distributed, sold, and/or marketed by the Company or any of its Subsidiaries (each such product, a "**Pharmaceutical Product**"), such Pharmaceutical Product is being manufactured, packaged, labeled, tested, distributed, sold and/or marketed by the Company in compliance with all applicable requirements under FDCA and similar laws, rules and regulations relating to registration, investigational use, premarket clearance, licensure, or application approval, good manufacturing practices, good laboratory practices, good clinical practices, product listing, quotas, labeling, advertising, record keeping and filing of reports, except where the failure to be in compliance would not have a Material Adverse Effect. There is no pending, completed or, to the Company's knowledge, threatened, action (including any lawsuit, arbitration, or legal or administrative or regulatory proceeding, charge, complaint, or investigation) against the Company or any of its Subsidiaries, and none of the Company or any of its Subsidiaries has received any notice, warning letter or other communication from the FDA or any other governmental entity, which (i) contests the premarket clearance, licensure, registration, or approval of, the uses of, the

distribution of, the manufacturing or packaging of, the testing of, the sale of, or the labeling and promotion of any Pharmaceutical Product, (ii) withdraws its approval of, requests the recall, suspension, or seizure of, or withdraws or orders the withdrawal of advertising or sales promotional materials relating to, any Pharmaceutical Product, (iii) imposes a clinical hold on any clinical investigation by the Company or any of its Subsidiaries, (iv) enjoins production at any facility of the Company or any of its Subsidiaries, (v) enters or proposes to enter into a consent decree of permanent injunction with the Company or any of its Subsidiaries, or (vi) otherwise alleges any violation of any laws, rules or regulations by the Company or any of its Subsidiaries, and which, either individually or in the aggregate, would have a Material Adverse Effect. The properties, business and operations of the Company have been and are being conducted in all material respects in accordance with all applicable laws, rules and regulations of the FDA. The Company has not been informed by the FDA that the FDA will prohibit the marketing, sale, license or use in the United States of any product proposed to be developed, produced or marketed by the Company nor has the FDA expressed any concern as to approving or clearing for marketing any product being developed or proposed to be developed by the Company.

2.39. **Related Party Transactions**. Except as disclosed in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus, no relationship, direct or indirect, exists between or among the Company or any of its subsidiaries, on the one hand, and the directors, officers, stockholders, other Affiliates, customers or suppliers of the Company or any of its subsidiaries, on the other hand, that would be required by the Securities Act to be described in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus.

2.40. **No Unlawful Contributions or Other Payments**. Neither the Company nor any of its subsidiaries, nor any director, officer of the Company, nor, to the knowledge of the Company, any agent, employee, Affiliate or other person associated with or acting on behalf of the Company or any of its subsidiaries has (i) used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expense relating to political activity; (ii) made any direct or indirect unlawful payment to any foreign or domestic government or regulatory official or employee; (iii) made any bribe, rebate, payoff, influence payment, kickback or other unlawful payment; or (iv) violated or is in violation of any provision of (y) the Foreign Corrupt Practices Act of 1977, as amended, and the rules and regulations thereunder (the "**FCPA**"), or (z) any non-U.S. anti-bribery or anti-corruption statute or regulation. The Company and its subsidiaries have instituted and maintain and enforce policies and procedures designed to promote and ensure compliance with all applicable anti-bribery and anti-corruption laws.

2.41. **Compliance with Anti-Money Laundering Laws**. The operations of the Company and its subsidiaries are and have been conducted at all times in compliance with all applicable financial recordkeeping and reporting requirements, including those of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the applicable anti-money laundering statutes of all jurisdictions where the Company or any of its subsidiaries conduct business, the rules and regulations thereunder and any related or similar rules, regulations or guidelines issued, administered or enforced by any governmental agency (collectively, the "**Anti-Money Laundering Laws**"); and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any of its subsidiaries with respect to the Anti-Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

2.42. **Compliance with OFAC**. Neither the Company nor any of its subsidiaries nor any director, officer of the Company, nor, to the knowledge of the Company, any agent, employee or Affiliate of the Company or any of its subsidiaries is an individual or entity (an "**OFAC Person**"), or is owned or controlled by an OFAC Person, that is currently the subject or target of any sanctions administered or enforced by the U.S. government (including, without limitation, the Office of Foreign Assets Control of the U.S. Treasury Department ("**OFAC**") or the U.S. Department of State and including, without limitation, the designation as a "specially designated national" or "blocked person"), the United Nations Security Council, the European Union, His Majesty's Treasury, or other relevant sanctions authority (collectively, "**Sanctions**"), nor is the Company or any of its subsidiaries located, organized or resident in a country or territory that is the subject or the target of Sanctions, including, without limitation, Crimea, Cuba, Iran, North Korea, Sudan and Syria (each, a "**Sanctioned Country**"); and the Company will not directly or indirectly use the proceeds of the offering, or lend, contribute or otherwise make available such proceeds to any subsidiary, joint venture partner or other OFAC Person (i) to fund or facilitate any activities of or business with any OFAC Person that, at the time of such funding or facilitation, is the subject or the target of Sanctions, (ii) to fund or facilitate any activities or business in any Sanctioned Country or (iii) in any other manner that will result in a violation by any OFAC Person (including any OFAC Person participating in the transaction, whether as underwriter, advisor, investor or otherwise) of Sanctions. Since the Company's inception, the Company and its subsidiaries have not knowingly engaged in and are not now knowingly engaged in any dealings or transactions with any OFAC Person that at the time of the dealing or transaction is or was the subject or the target of Sanctions or with any Sanctioned Country.

2.43. **No Registration Rights**. Except as described in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus, there are no contracts, agreements or understandings between the Company or any of its subsidiaries, on the one hand, and any person, on the other hand, granting such person any rights to require the Company or any of its subsidiaries to file a registration statement under the Securities Act with respect to any securities of the Company or any of its subsidiaries owned or to be owned by such person or to require the Company or any of its subsidiaries to include such securities in any securities to be registered pursuant to any registration statement to be filed by the Company or any of its subsidiaries under the Securities Act.

2.44. **Subsidiaries**. The subsidiaries of the Company shall be referred to hereinafter each as a '**Subsidiary**" and collectively as "**Subsidiaries**." The description of the corporate structure of the Company and each of the agreements among the Subsidiaries as set forth in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus under the caption "Corporate History and Structure" filed as Exhibit 21.1 to the Registration Statement is true and accurate in all material respects and nothing has been omitted from such description which would make it misleading. The Subsidiaries of the Company listed in Schedule 2.44 hereto are the only "significant subsidiaries" (as defined under Rule 1.02(w) of Regulation S-X under the Securities Act) of the Company (the "**Significant Subsidiaries**").

2.45. **No Restrictions on Subsidiaries**. Except as disclosed in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus, no Subsidiary of the Company is currently prohibited, directly or indirectly, from paying any dividends to the Company, from making any other distribution on such Subsidiary's share capital or similar ownership interest, from repaying to the Company any loans or advances to such Subsidiary from the Company or from transferring any of such Subsidiary's properties or assets to the Company or any other Subsidiary of the Company.

2.46. **Exchange Listing**. The Common Stock is listed on the Exchange, and the Company has taken no action designed to, or likely to have the effect of, delisting the Common Stock from the Exchange, nor has the Company received any notification that the Exchange is contemplating terminating such listing, except as described in the Registration Statement, the Disclosure Package and the Prospectus.

2.47. **Exchange Act Registration**. The Common Stock is registered pursuant to Section 12(b) under the Exchange Act. The Company has taken no action designed to, or likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act, nor has the Company received any notification that the Commission is contemplating terminating such registration.

2.48. **Prior Securities Transactions**. No securities of the Company have been sold by the Company or by or on behalf of, or for the benefit of, any person or persons controlling, controlled by or under common control with the Company, except as disclosed in the Registration Statement, the Disclosure Package and the Prospectus.

2.49. **Application of Takeover Protections**. The Company and the Board of Directors have taken all necessary action, if any, in order to render inapplicable any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or other similar anti-takeover provision under the Company's

certificate of incorporation (or similar charter documents) or the laws of its state of incorporation that is or could become applicable as a result of the Underwriter and the Company fulfilling their obligations or exercising their rights hereunder (including documents incorporated herein by reference or attached hereto).

2.50. **D&O Questionnaires**. To the Company's knowledge, all information contained in the questionnaires (the "**Questionnaires**") completed by each of the Company's directors, officers and beneficial holders of 5% or more of the Company's Common Stock immediately prior to the Offering as supplemented by all information concerning the Company's directors, officers and principal stockholders as described in the Registration Statement, the Disclosure Package and the Prospectus, provided to the Underwriter is true and correct in all material respects and the Company has not become aware of any information which would cause the information disclosed in the Questionnaires to become inaccurate and incorrect in any material respect.

2.51. **No Integrated Offering**. Neither the Company, nor any of its Affiliates, nor any Person acting on its or their behalf has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would cause this offering of the Closing Securitiess to be integrated with prior offerings by the Company for purposes of any applicable stockholder approval provisions of any Trading Market on which any of the securities of the Company are listed or designated.

2.52. **Litigation; Governmental Proceedings**. There is no material action, suit, proceeding, inquiry, arbitration, investigation, litigation or governmental proceeding pending or, to the Company's knowledge, threatened against, or involving the Company, any of its Subsidiaries or, to the Company's knowledge, any executive officer or director which has not been disclosed in the Registration Statement, the Disclosure Package and the Prospectus which is required to be disclosed.

2.53. **FINRA Matters**.

2.53.1. **No Broker's Fees**. Except as disclosed in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus, neither the Company nor any of its subsidiaries is a party to any contract, agreement or understanding with any person (other than this Agreement) that would give rise to a valid claim against any of them or the Underwriter for a brokerage commission, finder's fee or like payment in connection with the offering and sale of the Securities.

2.53.2. **Payments Within Six (6) Months**. Except as described in the Registration Statement, the Disclosure Package and the Prospectus, the Company has not made any direct or indirect payments (in cash, securities or otherwise) to: (i) any person, as a finder's fee, consulting fee or otherwise, in consideration of such person raising capital for the Company or introducing to the Company persons who raised or provided capital to the Company; (ii) any FINRA member; or (iii) any person or entity that has any direct or indirect affiliation or association with any FINRA member, within the six (6) months prior to the initial filing of the Registration Statement, other than the payment to the Underwriter as provided hereunder in connection with the Offering.

2.53.3. **Use of Proceeds**. None of the net proceeds of the Offering will be paid by the Company to any participating FINRA member or its affiliates, except as specifically authorized herein.

2.53.4. **FINRA Affiliation**. There is no (i) officer or director of the Company, (ii) to the Company's knowledge, any beneficial owner of 10% or more of any class of the Company's securities or (iii) to the Company's knowledge, any beneficial owner of the Company's unregistered equity securities which were acquired during the 180-Calendar Day period immediately preceding the filing of the Registration Statement that is an affiliate or associated person of a FINRA member participating in the Offering (as determined in accordance with the rules and regulations of FINRA).

2.53.5. **Information**. All information provided by the Company in its FINRA questionnaire to Underwriter Counsel specifically for use by Underwriter Counsel in connection with its Public Offering System filings (and related disclosure) with FINRA is true, correct and complete in all material respects.

3. **Representations and Warranties of the Underwriter**. The Underwriter represents and warrants to, and agrees with, the Company:

3.1. **No Testing-the-Waters Communications**. The Underwriter has not (i) alone engaged in any Testing-the-Waters Communication and (ii) authorized anyone to engage in Testing-the-Waters Communications. The Underwriter has not distributed, or authorized anyone else to distribute, any Written Testing-the-Waters Communications.

4. **Purchase and Resale**.

4.1. **Agreements to Sell and Purchase**. On the basis of the representations, warranties and covenants herein and subject to the conditions herein and any adjustments made in accordance with Section 4.4 hereof,

4.1.1. The Company agrees to issue and sell the Closing Securities to the Underwriter.

4.1.2. The Underwriter agrees to purchase from the Company the number of Closing Securities set forth opposite the Underwriter's name in Schedule 4.1.2 hereto, subject to such adjustments as the Underwriter in its sole discretion shall make to eliminate any sales or purchases of fractional Shares.

4.1.3. The Closing Shares are to be offered initially to the public at the offering price set forth on the cover page of the Final Prospectus (the **Public Offering Price**"). The purchase price per Closing Share to be paid by the Underwriter to the Company shall be $[●] per Closing Share (the **Purchase Price**"), which represents the Public Offering Price less an underwriting discount of 8.00%. The purchase price for each Closing Pre-funded Warrant shall be the Purchase Price per Closing Share, less the $0.00001 exercise price for each Closing Pre-funded Warrant.

4.1.4. Payment for the Closing Securities(the "Closing Securities**Payment**") shall be made by wire transfer in immediately available funds to the accounts specified by the Company to the Underwriter at the offices of Underwriter Counsel at 10:00 a.m., ET, on [●], 2025 or at such other place on the same or such other date and time, not later than the fifth (5th) Business Day thereafter, as the Underwriter and the Company may agree upon in writing (the "**Closing Date**"). The Closing SecuritiesPayment shall be made against delivery of the Closing Securities to be purchased on the Closing Date to the Underwriter with any transfer taxes, stamp duties and other similar taxes payable in connection with the sale of the Closing Securities duly paid by the Company.

4.2. **Over-Allotment Option**.

4.2.1. On the basis of the representations, warranties and covenants herein and subject to the conditions herein, the Underwriter is hereby granted an option (the "**Over-Allotment Option**") to purchase, in the aggregate, up to [●] additional shares of Common Stock, representing 15.0% of the Closing Share and/or Closing Pre-funded Warrants sold in the offering from the Company (the "**Option Shares**"). The purchase price to be paid per Option Share shall be equal to the price per Closing Share set forth in Section 4.1 hereof. The Securities and the shares of Common Stock issuable upon exercise of the Pre-funded Warrants and the Warrants (the "**Underlying Shares**"), are collectively referred to as the "**Public Securities**." The Public Securities shall be issued directly by the Company and shall have the rights and privileges described in the Registration Statement, the Pricing Disclosure Package and the Prospectus. The Closing Pre-funded Warrants shall be issued pursuant to, and shall have the rights and privileges set forth in, the form of Pre-funded Warrant. The offering and sale of the Public Securities is herein referred to as the "**Offering**".

4.2.2. Upon an exercise of the Over-Allotment Option and subject to the terms and conditions herein, the Company agrees to issue and sell the Option Securities to the Underwriter;

4.2.3. The Underwriter may exercise the Over-Allotment Option at any time in whole, or from time to time in part, on or before the forty-fifth (45th) Calendar Day following the date of the Final Prospectus, by written notice from the Underwriter to the Company (the "**Over-Allotment Exercise Notice**"). The Underwriter must give the Over-Allotment Exercise Notice to the Company at least one (1) Business Day prior to the Closing Date or the applicable Additional Closing Date, as the case may be. The Underwriter may cancel any exercise of the Over-Allotment Option at any time prior to the Closing Date or the applicable Additional Closing Date, as the case may be, by giving written notice of such cancellation to the Company.

4.2.4. The Over-Allotment Exercise Notice shall set forth each of the following:

4.2.4.1 the aggregate number of Option Securities as to which the Over-Allotment Option is being exercised.

4.2.4.2 the Over-Allotment Option Purchase Price.

4.2.4.3 the names and denominations in which the Option Securities are to be registered.

4.2.4.4 the applicable Additional Closing Date, which may be the same date and time as the Closing Date but shall not be earlier than the Closing Date nor later than the tenth (10th) full Business Day after the date of the Over-Allotment Exercise Notice.

4.2.5. Payment for the Option Securities (the '**Option Securities Payment**") shall be made by wire transfer in immediately available funds to the accounts specified by the Company to the Underwriter at the offices of Underwriter Counsel at 10:00 a.m. ET on the date specified in the corresponding Over-Allotment Exercise Notice, or at such other place on the same or such other date and time, not later than the fifth (5th) Business Day thereafter, as the Underwriter and the Company may agree upon in writing (an "**Additional Closing Date**"). The Option Securities Payment shall be made against delivery to the Underwriter for the respective accounts of the Underwriter of the Option Securities to be purchased on any Additional Closing Date, with any transfer taxes, stamp duties and other similar taxes payable in connection with the sale of the Option Securities duly paid by the Company. Delivery of the Option Securities shall be made through the facilities of DTC unless the Underwriter shall otherwise instruct.

4.3. **Underwriter's Warrants**. As additional compensation for the Underwriter's services, the Company shall issue to the Underwriter or its designees at the closing of the offering warrants (the "**Underwriter's Warrant**") to purchase that number of the Company's shares of Common Stock equal to 5.0% of the aggregate number of Closing Shares and Closing Pre-funded Warrants sold in the offering. The Underwriter's Warrant will be exercisable at any time and from time to time, in whole or in part, during the period commencing six (6) months after the commencement of sales in the Public Offering and ending five (5) months after issuance, at a price per Share equal to 125.0% of the Public Offering Price per Unit. The Underwriter's Warrant and the Shares issuable upon exercise thereof are sometimes hereinafter referred to collectively as the "**Underwriter's Securities**." The Underwriter understands and agrees that there are restrictions pursuant to FINRA Rule 5110 against transferring the Underwriter's Warrant and the underlying Share during the 180-Calendar Day period after the commencement of sales of the public offering and by its acceptance thereof shall agree that it and its respective designees, if any, will not, sell, transfer, assign, pledge or hypothecate the Underwriter's Securities, or any portion thereof, or be the subject of any hedging, short sale, derivative, put or call transaction that would result in the effective economic disposition of such securities for a period of 180 Calendar Days following the commencement of sales of the public offering to anyone other than (A) the Underwriter or a selected dealer in connection with the Offering, or (B) a bona fide officer or partner of the Underwriter or of any such Underwriter or selected dealer; and only if any such transferee agrees to the foregoing lock-up restrictions. Delivery of the executed Underwriter's Warrant Agreement shall be made on the Closing Date and the Underwriter's Warrant shall be issued in the name or names and in such authorized denominations as the Underwriter may request.

4.4. **Public Offering**. The Company understands that the Underwriter intends to make a public offering of the Closing Securities as soon after the effectiveness of this Agreement as in the judgment of the Underwriter is advisable, and initially to offer the Closing Securities on the terms set forth in the Final Prospectus. The Company acknowledges and agrees that the Underwriter may offer and sell Closing Securities to or through any Affiliate of the Underwriter.

5. **Covenants of the Company**. The Company hereby covenants and agrees with the Underwriter as follows:

5.1. **Filings with the Commission**. The Company will:

5.1.1. prepare and file the Final Prospectus (in a form approved by the Underwriter and containing the Rule 430A Information) with the Commission in accordance with and within the time periods specified by Rules 424(b) and 430A under the Securities Act.

5.1.2. file any Issuer Free Writing Prospectus with the Commission to the extent required by Rule 433 under the Securities Act.

5.1.3. file with the Commission such reports as may be required by Rule 463 under the Securities Act.

5.2. **Notice to the Underwriter**. The Company will advise the Underwriter promptly, and confirm such advice in writing:

5.2.1. when the Registration Statement has become effective.

5.2.2. when the Final Prospectus has been filed with the Commission.

5.2.3. when any amendment to the Registration Statement has been filed or becomes effective.

5.2.4. when any Rule 462(b) Registration Statement has been filed with the Commission.

5.2.5. when any supplement to the Final Prospectus, any Issuer Free Writing Prospectus, any Written Testing-the-Waters Communication or any amendment to the Final Prospectus has been filed or distributed.

5.2.6. of (x) any request by the Commission for any amendment to the Registration Statement or any amendment or supplement to the Final Prospectus, (y) the receipt of any comments from the Commission relating to the Registration Statement or (z) any other request by the Commission for any additional information, including, but not limited to, any request for information concerning any Testing-the-Waters Communication.

5.2.7. of (x) the issuance by the Commission of any order suspending the effectiveness of the Registration Statement or preventing or suspending the use of the Registration Statement, the Pricing Disclosure Package, the Final Prospectus, any Preliminary Prospectus, any Issuer Free Writing Prospectus or any Written Testing-the-Waters Communication or (y) the initiation or, to the knowledge of the Company, threatening of any proceeding for that purpose or pursuant to Section 8A of the Securities Act.

5.2.8. of the occurrence of any event or development within the Prospectus Delivery Period as a result of which, the Final Prospectus, the Pricing Disclosure Package, any Issuer Free Writing Prospectus or any Written Testing-the-Waters Communication as then amended or supplemented would include any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances existing when the Final Prospectus, the Pricing Disclosure Package, any such Issuer Free Writing Prospectus or any such Written Testing-the-Waters Communication is delivered to a purchaser, not misleading.

5.2.9. of the issuance by any governmental or regulatory authority or any order preventing or suspending the use of any of the Registration Statement, the Pricing Disclosure Package, the Final Prospectus, any Preliminary Prospectus, any Issuer Free Writing Prospectus or any Testing-the-Waters Communication or the initiation or threatening for that purpose.

5.2.10. of the receipt by the Company of any notice with respect to any suspension of the qualification of the Closing Securities for offer and sale in any jurisdiction or the initiation or, to the knowledge of the Company, threatening of any proceeding for such purpose.

5.3. **Ongoing Compliance**.

5.3.1. If during the Prospectus Delivery Period:

5.3.1.1 any event or development shall occur or condition shall exist as a result of which the Final Prospectus as then amended or supplemented would include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances existing when the Final Prospectus is delivered to a purchaser, not misleading, the Company will, as soon as reasonably possible, notify the Underwriter thereof and forthwith prepare and, subject to Section 5.4 hereof, file with the Commission and furnish, at its own expense, to the Underwriter and to such dealers as the Underwriter may designate such amendments or supplements to the Final Prospectus as may be necessary so that the statements in the Final Prospectus as so amended or supplemented will not, in the light of the circumstances existing when the Final Prospectus is delivered to a purchaser, be misleading; or

5.3.1.2 it is necessary to amend or supplement the Final Prospectus to comply with applicable law, the Company will, as soon as reasonably possible, notify the Underwriter thereof and forthwith prepare and, subject to Section 5.4 hereof, file with the Commission and furnish, at its own expense, to the Underwriter and to such dealers as the Underwriter may designate such amendments or supplements to the Final Prospectus as may be necessary so that the Final Prospectus will comply with applicable law; and

5.3.2. if at any time prior to the Closing Date or any Additional Closing Date, as the case may be:

5.3.2.1 any event or development shall occur or condition shall exist as a result of which the Pricing Disclosure Package as then amended or supplemented would include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances existing when the Pricing Disclosure Package is delivered to a purchaser, not misleading, the Company will immediately notify the Underwriter thereof and forthwith prepare and, subject to Section 5.4 hereof, file with the Commission (to the extent required) and furnish, at its own expense, to the Underwriter and to such dealers as the Underwriter may designate such amendments or supplements to the Pricing Disclosure Package as may be necessary so that the statements in the Pricing Disclosure Package as so amended or supplemented will not, in the light of the circumstances existing when the Pricing Disclosure Package is delivered to a purchaser, be misleading; or

5.3.2.2 it is necessary to amend or supplement the Pricing Disclosure Package to comply with applicable law, the Company will immediately notify the Underwriter thereof and forthwith prepare and, subject to Section 5.4 hereof, file with the Commission (to the extent required) and furnish, at its own expense, to the Underwriter and to such dealers as the Underwriter may designate such amendments or supplements to the Pricing Disclosure Package as may be necessary so that the Pricing Disclosure Package will comply with applicable law.

5.4. **Amendments, Supplements and Issuer Free Writing Prospectuses** Before (i) using, authorizing, approving, referring to, distributing or filing any Issuer Free Writing Prospectus, (ii) filing (x) any Rule 462(b) Registration Statement or (y) any amendment or supplement to the Registration Statement or the Final Prospectus, or (iii) distributing any amendment or supplement to the Pricing Disclosure Package or the Final Prospectus, the Company will furnish to the Underwriter and Underwriter Counsel a copy of the proposed Issuer Free Writing Prospectus, Rule 462(b) Registration Statement or other amendment or supplement for review and will not use, authorize, refer to, distribute or file any such Issuer Free Writing Prospectus or Rule 462(b) Registration Statement, or file or distribute any such proposed amendment or supplement (A) to which the Underwriter objects in a timely manner and (B) which is not in compliance with the Securities Act. The Company will, pursuant to reasonable procedures developed in good faith, retain copies of each Issuer Free Writing Prospectus that is not filed with the Commission in accordance with Rule 433 under the Securities Act.

5.5. **Delivery of Copies**. The Company will, upon request of the Underwriter, deliver, without charge, (i) to the Underwriter, three signed copies of the Registration Statement as originally filed and each amendment thereto, in each case, including all exhibits and consents filed therewith; and (ii) to each Underwriter (A) a conformed copy of the Registration Statement as originally filed and each amendment thereto (without exhibits and consents) and (B) during the Prospectus Delivery Period, as many copies of the Final Prospectus (including all amendments and supplements thereto and each Issuer Free Writing Prospectus) as the Underwriter may reasonably request.

5.6. **Blue Sky Compliance**. The Company will use its best efforts, with the Underwriter's cooperation, if necessary, to qualify or register (or to obtain exemptions from qualifying or registering) the Securities and the Underwriter's Securities for offer and sale under the securities or Blue Sky laws of such jurisdictions as the Underwriter shall reasonably request and will use its reasonable best efforts, with the Underwriter's cooperation, if necessary, to continue such qualifications, registrations and exemptions in effect so long as required for the distribution of the Securities and the Underwriter's Securities; provided that the Company shall not be required to (i) qualify as a foreign corporation or other entity or as a dealer in securities in any such jurisdiction where it would not otherwise be required to so qualify, (ii) file any general consent to service of process in any such jurisdiction or (iii) subject itself to taxation in any such jurisdiction if it is not otherwise so subject.

5.7. **Earning Statement**. The Company will make generally available to its security holders and the Underwriter as soon as practicable an earning statement that satisfies the provisions of Section 11(a) of the Securities Act and Rule 158 under the Securities Act covering a period of at least 12 months beginning after the "effective date" (as defined in Rule 158 under the Securities Act) of the Registration Statement; provided that the Company will be deemed to have furnished such statement to its security holders and the Underwriter to the extent it is filed on the Commission's Electronic Data Gathering, Analysis and Retrieval system ("**EDGAR**").

5.8. **Use of Proceeds**. The Company shall apply the net proceeds from the sale of the Closing Securities and the Option Securities in the manner described under the caption "Use of Proceeds" in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus.

5.9. **Clear Market**.

5.9.1. For a period of sixty (60) days after the Closing Date (the "**Standstill Period**"), the Company will not (x) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, or file with the Commission a registration statement under the Securities Act relating to, any shares of Common Stock or any securities convertible into or exercisable or exchangeable for shares of Common Stock, or publicly disclose the intention to make any offer, sale, pledge, disposition or filing, or (y) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the shares of Common Stock or any such other securities, whether any such transaction described in clause (x) or (y) above is to be settled by delivery of shares of Common Stock or such other securities, in cash or otherwise, without the prior written consent of the Underwriter.

5.9.2. The restrictions contained in Section 5.9.1 hereof shall not apply to: (A) the Closing Securities, (B) any shares of Common Stock issued under Company Common Stock Incentive Plans or warrants issued by the Company, in each case, described as outstanding in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus, (C) any options and other awards granted under a Company Common Stock Incentive Plan as described in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus, provided that such securities are issued as "restricted securities" (as defined in Rule 144) and carry no registration rights that require or permit any registration statement in connection therewith to be filed publicly or declared effective during the Standstill Period (D) the amendment of a Company Common Stock Incentive Plan as described in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus, (E) the filing by the Company of any registration statement on Form S-8 or a successor form thereto relating to a Company Common Stock Incentive Plan described in the Registration Statement, the Pricing Disclosure Package and the Final Prospectus and (F) shares of Common Stock or other securities issued pursuant to acquisitions or strategic transactions (whether by merger, consolidation, purchase of equity, purchase of assets, reorganization or otherwise) approved by a majority of the disinterested directors of the Company, provided that such securities are issued as "restricted securities" (as defined in Rule 144) and carry no registration rights that require or permit the filing of any registration statement in connection therewith during the Standstill Period, and provided that any such issuance shall only be to a Person (or to the equityholders of a Person) which is, itself or through its subsidiaries, an operating company or an owner of an asset in a business synergistic with the business of the Company and shall provide to the Company additional benefits in addition to the investment of funds, but shall not include a transaction in which the Company is issuing securities primarily for the purpose of raising capital or to an entity whose primary business is investing in securities; provided, however, that any such shares of Common Stock or other securities issued or granted pursuant to clauses (B), (C) and (F) during the Standstill Period shall not be saleable in the public market until the expiration of the Standstill Period.

5.9.3. If the Underwriter, in its sole discretion, agrees to release or waive the restrictions set forth in any Lock-Up Agreement as described in Section 8.9 and provides the Company with notice of the impending release or waiver substantially in the form of **Exhibit 5.9.3.1** hereto at least three (3) Business Days before the effective date of the release or waiver, then the Company agrees to announce the impending release or waiver by a press release substantially in the form of **Exhibit 5.9.3.2** hereto through a major news service at least two (2) Business Days before the effective date of the release or waiver.

5.9.4. Notwithstanding the foregoing, this Section 5.9 shall not apply to an Exempt Issuance.

5.10. **No Stabilization or Manipulation**. None of the Company, its Affiliates or any person acting on its or any of their behalf (other than the Underwriter, as to which no covenant is given) will take, directly or indirectly, any action designed to or that constitutes or that could reasonably be expected to cause or result in the stabilization or manipulation of the price of any securities of the Company. The Company acknowledges that the Underwriter may engage in passive market making transactions in the Common Stock on the Exchange in accordance with Regulation M.

5.11. **Investment Company Act**. The Company shall not invest, or otherwise use the proceeds received by the Company from the sale of the Closing Securities or the Option Securities in such a manner as would require the Company or any of its subsidiaries to register as an "investment company" (as defined in the Investment Company Act) under the Investment Company Act.

5.12. **Transfer Agent**. For the period of two years from the date of this Agreement, the Company shall engage and maintain, at its expense, a registrar and transfer agent for the Common Stock.

5.13. **Reports**. For the period of two years from the date of this Agreement, the Company will furnish to the Underwriter, as soon as they are available, copies of all reports or other communications (financial or other) furnished to holders of the Common Stock, and copies of any reports and financial statements furnished to or filed with the Commission or any national securities exchange or automatic quotation system; provided that the Company will be deemed to have furnished such reports and financial statements to the Underwriter to the extent they are filed on the Commission's Electronic Data Gathering, Analysis and Retrieval system.

5.14. **Right of First Refusal**. The Company agrees that, during the Right of First Refusal Period and subject to any Senior Right of First Refusal (as defined below), if, the Company or any of its subsidiaries: (a) decides to dispose of or acquire business units or acquire any of its outstanding securities or make any exchange or tender offer or enter into a merger, consolidation or other business combination or any recapitalization, reorganization, restructuring or other similar transaction, including, without limitation, an extraordinary dividend or distributions or a spin-off or split-off, and the Company decides to retain a financial advisor for such transaction, the Underwriter (or any affiliate designated by the Underwriter) shall have the right to act as the Company's exclusive financial advisor for any such transaction; or (b) decides to finance or refinance any indebtedness, the Underwriter (or any affiliate designated by the Underwriter) shall have the right to act as sole book-runner, sole manager, sole placement agent or sole agent with respect to such financing or refinancing; or (c) decides to raise funds by means of a public offering (including at-the-market facility) or a private placement or any other capital raising financing of equity, equity-linked or debt securities, the Underwriter (or any affiliate designated by the Underwriter) shall have the right to act as sole book-running manager, sole underwriter or sole placement agent for such financing. The Company shall provide written notice to the Underwriter of any proposed transaction set forth in (a)-(c) above, including a detailed term sheet. The Underwriter (including through its affiliates) shall have ten (10) business days following receipt of such detailed term sheet to determine whether to waive its rights under this Section 5.14. If the Underwriter or one of its affiliates decides to accept any such engagement, the agreement governing such engagement (each, a "**Subsequent Transaction Agreement**") will contain, among other things, provisions for customary fees for transactions of similar size and nature, but in no event will the fees be less than those outlined herein, and the provisions of this Agreement, including indemnification, that are appropriate to such a transaction provided, however, that after the Underwriter delivers such engagement letter, the Company may notify the Underwriter that it wishes to terminate the Right of First Refusal by paying a fee of $10,000, to be effective only upon receipt of such payment. The Right of First Refusal Period shall be the period beginning on the date hereof and ending on the date that is the earlier of (i) two (2) years after the expiration or earlier termination of any senior right of first refusal ("**Senior Right of First Refusal**") existing on the date hereof with respect to transactions described in (a) – (c) above, or (ii) the date that is the three (3) year anniversary of the commencement of sales in the Offering. Notwithstanding the foregoing, the decision to accept the Company's engagement under this Section 5.14 shall be made by the Underwriter or one of its affiliates, by a written notice to the Company, within ten (10) Calendar

Days after the receipt of the Company's notification of its financing needs, including a detailed term sheet. The Underwriter's determination of whether in any case to exercise its right of first refusal will be strictly limited to the terms on such term sheet, and any waiver of such right of first refusal shall apply only to such specific terms. If the Underwriter waives its right of first refusal, any deviation from such terms (including without limitation after the launch of a subsequent transaction) shall void the waiver and require the Company to seek a new waiver from the right of first refusal on the terms set forth in this Section 5.14.

6. **Covenants of the Underwriter**. The Underwriter hereby covenants and agrees with the Company as follows:

6.1. **Underwriter Free Writing Prospectus**. The Underwriter has not used, authorized the use of, referred to or participated in the planning for use of, and will not use, authorize the use of, refer to or participate in the planning for use of, any Free Writing Prospectus (which term includes use of any written information furnished to the Commission by the Company and not incorporated by reference into the Registration Statement and any press release issued by the Company) other than (i) a Free Writing Prospectus that contains no "issuer information" filed or required to be filed pursuant to Rule 433(d) under the Securities Act ("**Issuer Information**") that was not included in the Preliminary Prospectus or a previously filed Issuer Free Writing Prospectus, (ii) any Issuer Free Writing Prospectus listed in Schedule 2.5.4 hereto or prepared pursuant to Section 2.5.4 or Section 5.4 hereof (including any electronic road show), or (iii) any Free Writing Prospectus prepared by the Underwriter and approved by the Company in advance in writing.

6.2. **Section 8A Proceedings**. The Underwriter is not subject to any pending proceeding under Section 8A of the Securities Act with respect to the offering of the Securities and will promptly notify the Company if any such proceeding against it is initiated during the Prospectus Delivery Period.

7. **Payment of Expenses**.

7.1. **Company Expenses**. The Company hereby agrees to pay on the Closing Date all expenses incident to the performance of the obligations of the Company under this Agreement including, but not limited to: (a) all filing fees and expenses relating to the registration of the Securities with the Commission; (b) all filing fees and expenses associated with the review of the offering of the Securities by FINRA; (c) all fees and expenses relating to the listing of the Shares on the Exchange (to the extent relevant) or on such other stock exchanges as the Company and the Underwriter together determine; (d) all fees, expenses and disbursements relating to the registration or qualification of the Securities under the "blue sky" securities laws of such states and other jurisdictions as the Underwriter may reasonably designate (including, without limitation, all filing and registration fees, and the reasonable fees and disbursements of the Company's "blue sky" counsel, which will be Underwriter Counsel) unless such filings are not required in connection with the Company's proposed Exchange listing; (e) all fees, expenses and disbursements relating to the registration, qualification or exemption of the Securities under the securities laws of such foreign jurisdictions as the Underwriter may reasonably designate; (f) the costs of all mailing and printing of the underwriting documents, the Registration Statement, Pricing Disclosure Package, the Final Prospectus, any Preliminary Prospectus, any Issuer Free Writing Prospectus or any Testing-the-Waters Communication and all amendments, supplements and exhibits thereto as the Underwriter may reasonably deem necessary; (g) the costs of preparing, printing and delivering certificates representing the Shares; (h) fees and expenses of the transfer agent for the Shares; (i) transfer and/or stamp taxes, if any, payable upon the transfer of securities from the Company to the Underwriter; (j) the fees and expenses of the Company's accountants; (k) reasonable legal fees and disbursements for Underwriter Counsel (l) the costs of any "due diligence" meetings or background checks for members of management and (m) preparation of leather bound volumes and Lucite cube mementos in such quantities as Spartan may reasonably request in connection with an underwritten offering. The total amount payable by the Company pursuant to (k) to the Underwriter shall not exceed $125,000. The Underwriter may deduct from the net proceeds of the Offering payable to the Company on the Closing Date the expenses set forth herein to be paid by the Company to the Underwriter. In addition to the foregoing, the Company agrees to pay to Spartan a non-accountable expense allowance in the amount of 1% of the gross dollar amount of the Offering. Except as provided for in this Agreement, the Underwriter shall bear the costs and expenses incurred by them in connection with the sale of the Securities and the transactions contemplated thereby.

7.2. **Underwriter Expenses**. Except to the extent otherwise provided in this Section 7 or Section 9 hereof, the Underwriter will pay all of its own costs and expenses, including the fees and expenses of Underwriter Counsel, any stock transfer taxes on resale of any of the Shares held by them, and any advertising expenses connected with any offers they may make.

7.3. **Company Reimbursement**. The provisions of this Section 7 shall not affect any agreement that the Company may make for the sharing of such costs and expenses.

8. **Conditions of the Obligations of the Underwriter**. The obligations of the Underwriter to purchase the Closing Securities as provided herein on the Closing Date or the Option Securities as provided herein on any Additional Closing Date, as the case may be, shall be subject to the timely performance by the Company of its covenants and other obligations hereunder, and to each of the following additional conditions:

8.1. **Registration Compliance; No Stop Order**.

8.1.1. The Registration Statement and any post-effective amendment thereto shall have become effective, no stop order suspending the effectiveness of the Registration Statement or any post-effective amendment thereto shall be in effect, and no proceeding for such purpose or pursuant to Section 8A of the Securities Act shall be pending before or threatened by the Commission.

8.1.2. The Company shall have filed the Final Prospectus and each Issuer Free Writing Prospectus with the Commission in accordance with and within the time periods prescribed by Section 5.1 hereof.

8.1.3. The Company shall have (A) disclosed to the Underwriter all requests by the Commission for additional information relating to the offer and sale of the Securities and (B) complied with such requests to the reasonable satisfaction of the Underwriter.

8.2. **Representations and Warranties**. The representations and warranties of the Company contained herein shall be true and correct on the date hereof and on and as of the Closing Date or any Additional Closing Date, as the case may be, and the statements of the Company and its officers made in any certificates delivered pursuant to this Agreement shall be true and correct on and as of the Closing Date or any Additional Closing Date, as the case may be.

8.3. **Auditor Comfort Letters**. On the date of this Agreement and on the Closing Date or any Additional Closing Date, as the case may be, Weinberg & Company, P.A. shall have furnished to the Underwriter, at the request of the Company, letters, dated the respective dates of delivery thereof and addressed to the Underwriter, in form and substance reasonably satisfactory to the Underwriter, containing statements and information of the type customarily included in accountants' "comfort letters" to underwriters with respect to the financial statements and certain financial information contained in each of the Registration Statement, the Pricing Disclosure Package and the Final Prospectus; provided that the letter delivered on the Closing Date or any Additional Closing Date, as the case may be, shall use a "cut-off" date no more than two (2) Business Days prior to the Closing Date or such Additional Closing Date, as the case may be.

8.4. **No Material Adverse Change**. No event or condition of a type described in Section 2.12 hereof shall have occurred or shall exist, which event or condition is not described in each of the Pricing Disclosure Package and the Final Prospectus (in each case, exclusive of any amendment or supplement thereto), the effect of which in

the judgment of the Underwriter makes it impracticable or inadvisable to proceed with the offering, sale or delivery of the Closing Securities on the Closing Date or any Additional Closing Date, as the case may be, in the manner and on the terms contemplated by this Agreement, the Pricing Disclosure Package and the Final Prospectus (in each case, exclusive of any amendment or supplement thereto).

8.5. **Opinion and Negative Assurance Letter of Counsel to the Company**. Company Counsel shall each have furnished to the Underwriter, at the request of the Company, its (i) written opinion, addressed to the Underwriter and dated the Closing Date or any Additional Closing Date, as the case may be, and (ii) negative assurance letter, addressed to the Underwriter and dated the Closing Date or any Additional Closing Date, as the case may be, in each case, in a form reasonably satisfactory to the Underwriter.

8.6. **Officer's Certificate**. The Underwriter shall have received, as of each of the date of this Agreement, the Closing Date and any Additional Closing Date, a certificate from the Company's CFO in form and substance reasonably satisfactory to the Underwriter, containing statements and information confirming that the financial statements and certain financial information contained in the Registration Statement is consistent with the Company's records and does not contain any material misstatements or omissions and shall have received as of the Closing Date or any Additional Closing Date, as the case may be, a certificate of an executive officer of the Company who has specific knowledge of the Company's financial matters and is satisfactory to the Underwriter, (i) confirming that such officer has carefully reviewed the Registration Statement, the Pricing Disclosure Package, the Final Prospectus, each Issuer Free Writing Prospectus and each Written Testing-the-Waters Communication and, to the knowledge of such officer, the representations set forth in Sections 2.1.2, 2.2, 2.3.1, 2.4.1, 2.5.1, 2.6 and 2.8, hereof are true and correct on and as of the Closing Date or any Additional Closing Date, as the case may be; (ii) to the effect set forth in clause (i) of Section 2.10 and Section 8.1 hereof; and (iii) confirming that all of the other representations and warranties of the Company in this Agreement are true and correct on and as of the Closing Date or any Additional Closing Date, as the case may be, and that the Company has complied with all agreements and covenants and satisfied all other conditions on its part to be performed or satisfied hereunder at or prior to the Closing Date or any Additional Closing Date, as the case may be.

8.7. **No Legal Impediment to Issuance and Sale**. No action shall have been taken and no statute, rule, regulation or order shall have been enacted, adopted or issued by any federal, state or foreign governmental or regulatory authority that would, as of the Closing Date or any Additional Closing Date, as the case may be, prevent the issuance, sale or delivery of the Closing Securities or the Option Securities by the Company; and no injunction or order of any federal, state or foreign court shall have been issued that would, as of the Closing Date or any Additional Closing Date, as the case may be, prevent the issuance, sale or delivery of the Closing Securities or the Option Securities.

8.8. **Good Standing**. The Underwriter shall have received on and as of the Closing Date and any Additional Closing Date, as the case may be, satisfactory evidence of the good standing of the Company in its jurisdiction of incorporation, in writing from the appropriate governmental authorities of such jurisdiction.

8.9. **Lock-Up Agreements**. The Lock-Up Agreements substantially in the form of **Exhibit 8.9** hereto executed by the officers, directors and certain stockholders of the Company relating to sales and certain other dispositions of shares of Common Stock or certain other securities, delivered to the Underwriter on or before the date hereof, shall be in full force and effect on the Closing Date or any Additional Closing Date, as the case may be.

8.10. **Underwriter's Warrant Agreement**. The Underwriter's Warrant Agreement, substantially in the form of **Exhibit 8.10** hereto, executed by the officers of the Company, delivered to the Underwriter on or before the date hereof, shall be in full force and effect on the Closing Date or any Additional Closing Date, as the case may be.

8.11. **Exchange Listing**. On the Closing Date or any Additional Closing Date, as the case may be, the Shares shall have been approved for listing on the Exchange, subject to notice of issuance.

8.12. **Additional Documents**. On or prior to the Closing Date or any Additional Closing Date, as the case may be, the Underwriter and Underwriter Counsel shall have received such information, certificates and other additional documents from the Company as they may reasonably require for the purpose of enabling them to pass upon the issuance and sale of the Securities as contemplated herein or in order to evidence the accuracy of any of the representations and warranties, or the satisfaction of any of the covenants, closing conditions or other obligations, contained in this Agreement.

All opinions, letters, certificates and other documents delivered pursuant to this Agreement will be deemed to be in compliance with the provisions hereof only if they are reasonably satisfactory in form and substance to Underwriter Counsel.

If any condition specified in this Section 8 is not satisfied when and as required to be satisfied, this Agreement and all obligations of the Underwriter hereunder may be terminated by the Underwriter by notice to the Company at any time on or prior to the Closing Date or any Additional Closing Date, as the case may be, which termination shall be without liability on the part of any party to any other party, except that the Company shall continue to be liable for the payment of expenses under Section 7 and Section 12 hereof and except that the provisions of Section 9 and Section 10 hereof shall at all times be effective and shall survive any such termination.

9. **Indemnification**.

9.1. **Indemnification of the Underwriter by the Company**. The Company agrees to indemnify and hold harmless the Underwriter, its Affiliates, directors, officers, employees and agents and each person, if any, who controls the Underwriter within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act from and against any and all losses, claims, damages and liabilities (including, without limitation, all reasonable legal fees and other expenses incurred in connection with any suit, action or proceeding or any claim asserted, as such fees and expenses are incurred), joint or several, that arise out of or are based upon (i) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement (or any amendment or supplement thereto), or the omission or alleged omission therefrom of a material fact required to be stated therein or necessary in order to make the statements therein not misleading, or (ii) any untrue statement or alleged untrue statement of a material fact contained in any Pricing Disclosure Package (including any Pricing Disclosure Package that has subsequently been amended), the Final Prospectus (or any amendment or supplement thereto), any Preliminary Prospectus, any Issuer Information, any Issuer Free Writing Prospectus, any Written Testing-the-Waters Communication or any Road Show, or the omission or alleged omission therefrom of a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading, in each case, except insofar as such losses, claims, damages or liabilities arise out of, or are based upon, any untrue statement or omission or alleged untrue statement or omission made in reliance upon and in conformity with the Underwriter Information. The indemnity agreement set forth in this Section 9.1 shall be in addition to any liabilities that the Company may otherwise have.

9.2. **Indemnification of the Company by the Underwriter**. The Underwriter agrees to indemnify and hold harmless the Company, its directors, each officer who signed the Registration Statement and each person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act from and against any and all losses, claims, damages and liabilities (including, without limitation, all reasonable legal fees and other expenses incurred in connection with any suit, action or proceeding or any claim asserted, as such fees and expenses are incurred), joint or several, to the same extent as the indemnity set forth in Section 9.1 hereof; provided, however, that the Underwriter shall be liable only to the extent that any untrue statement or omission or alleged untrue statement or omission was made in the Registration Statement (or any amendment or supplement thereto), any Pricing Disclosure Package (including any Pricing Disclosure Package that has subsequently been amended), the Final Prospectus (or any amendment or supplement thereto), any Preliminary Prospectus, any Issuer Information, any Issuer Free Writing Prospectus, any Written Testing-the-Waters Communication or any Road Show in reliance upon, and in conformity with, the Underwriter Information relating to the Underwriter. The indemnity agreement set forth in this Section 9 shall be in addition to any liabilities that the Underwriter may otherwise have.

9.3. **Notifications and Other Indemnification Procedures**. If any suit, action, proceeding (including any governmental or regulatory investigation), claim or demand shall be brought or asserted against any person in respect of which indemnification may be sought pursuant to any of the preceding subsections of this Section 9, such person (the "**Indemnified Person**") shall promptly notify the person against whom such indemnification may be sought (the "**Indemnifying Person**") in writing; provided that the failure to notify the Indemnifying Person shall not relieve it from any liability that it may have under any of the preceding subsections of this Section 9 except to the extent that it has been materially prejudiced by such failure; and provided, further, that the failure to notify the Indemnifying Person shall not relieve it from any liability that it may have to an Indemnified Person otherwise than under any of the preceding subsections of this Section 9. If any such proceeding shall be brought or asserted against an Indemnified Person and it shall have notified the Indemnifying Person thereof, the Indemnifying Person shall retain counsel reasonably satisfactory to the Indemnified Person (who shall not, without the consent of the Indemnified Person, be counsel to the Indemnifying Person) to represent the Indemnified Person in such proceeding and shall pay the reasonable and documented fees and expenses of such counsel related to such proceeding, as incurred. In any such proceeding, any Indemnified Person shall have the right to retain its own counsel, but the fees and expenses of such counsel shall be at the expense of such Indemnified Person unless (i) the Indemnifying Person and the Indemnified Person shall have mutually agreed to the contrary; (ii) the Indemnifying Person has failed within a reasonable time to retain counsel reasonably satisfactory to the Indemnified Person; (iii) the Indemnified Person shall have reasonably concluded that there may be legal defenses available to it that are different from or in addition to those available to the Indemnifying Person; or (iv) the named parties in any such proceeding (including any impleaded parties) include both the Indemnifying Person and the Indemnified Person and representation of both parties by the same counsel would be inappropriate due to actual or potential differing interest between them. It is understood and agreed that the Indemnifying Person shall not, in connection with any proceeding or related proceedings in the same jurisdiction, be liable for the fees and expenses of more than one separate firm (in addition to any local counsel) for all Indemnified Persons, and that all such fees and expenses shall be paid or reimbursed as they are incurred. Any such separate firm for (i) the Underwriter, its Affiliates, directors, officers, employees and agents and each person, if any, who controls the Underwriter within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act shall be designated in writing by the Underwriter; and (ii) the Company, its directors, its officers who signed the Registration Statement and each person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act shall be designated in writing by the Company.

9.4. **Settlements**. The Indemnifying Person under this Section 9 shall not be liable for any settlement of any proceeding effected without its written consent, which consent may not be unreasonably withheld, but if settled with such consent or if there be a final judgment for the plaintiff, the Indemnifying Person agrees to indemnify the Indemnified Person from and against any loss, claim, damage, liability or expense by reason of such settlement or judgment. Notwithstanding the foregoing sentence, if at any time an Indemnified Person shall have requested an Indemnifying Person to reimburse the Indemnified Person for any reasonably incurred and documented fees and expenses of counsel as contemplated by this Section 9, the Indemnifying Person agrees that it shall be liable for any settlement of any proceeding effected without its written consent if (i) such settlement is entered into more than forty-five (45) Calendar Days after receipt by such Indemnifying Person of the aforesaid request, (ii) such Indemnifying Person shall not have reimbursed the Indemnified Person in accordance with such request, or shall not have disputed in good faith the Indemnified Person's entitlement to such reimbursement, prior to the date of such settlement and (iii) such Indemnified Person shall have given the Indemnifying Person at least forty-five (45) Calendar Days' prior notice of its intention to settle. No Indemnifying Person shall, without the prior written consent of the Indemnified Person effect any settlement, compromise or consent to the entry of judgment in any pending or threatened action, suit or proceeding in respect of which any Indemnified Person is or could have been a party and indemnity was or could have been sought hereunder by such Indemnified Person, unless such settlement, compromise or consent (x) includes an unconditional release of such Indemnified Person, in form and substance reasonably satisfactory to such Indemnified Person, from and against all liability on claims that are the subject matter of such action, suit or proceeding and (y) does not include any statements as to or any findings of fault, culpability or failure to act by or on behalf of any Indemnified Person.

10. **Contribution**.

10.1. To the extent the indemnification provided for in Section 9 hereof is unavailable to or insufficient to hold harmless an Indemnified Person in respect of any losses, claims, damages, liabilities or expenses referred to therein, then each Indemnifying Person, in lieu of indemnifying such Indemnified Person thereunder, shall contribute to the aggregate amount paid or payable by such Indemnified Person, as incurred, as a result of any losses, claims, damages, liabilities or expenses referred to therein (i) in such proportion as is appropriate to reflect the relative benefits received by the Company, on the one hand, and the Underwriter, on the other hand, from the offering of the Securities pursuant to this Agreement or (ii) if the allocation provided by clause (i) above is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) above but also the relative fault of the Company, on the one hand, and the Underwriter, on the other hand, in connection with the statements or omissions that resulted in such losses, claims, damages, liabilities or expenses, as well as any other relevant equitable considerations. The relative benefits received by the Company, on the one hand, and the Underwriter, on the other hand, in connection with the offering of the Securities pursuant to this Agreement shall be deemed to be in the same respective proportions as the total net proceeds from the offering of the Securities pursuant to this Agreement (before deducting expenses) received by the Company, on the one hand, and the total underwriting discounts and commissions received by the Underwriter, on the other hand, in each case as set forth in the table on the cover of the Final Prospectus bear to the aggregate initial offering price of the Securities. The relative fault of the Company, on the one hand, and the Underwriter, on the other hand, shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or omission or alleged omission to state a material fact relates to information supplied by the Company, on the one hand, or the Underwriter, on the other hand, and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission.

10.2. The amount paid or payable by a party as a result of the losses, claims, damages, liabilities and expenses referred to above shall be deemed to include, subject to the limitations set forth in Section 9 hereof, all reasonable legal or other fees or expenses incurred by such party in connection with investigating or defending any action or claim, which fees and expenses shall be advanced. The provisions set forth in Section 9 hereof with respect to notice of commencement of any action shall apply if a claim for contribution is to be made under this Section 10; provided, however, that no additional notice shall be required with respect to any action for which notice has been given under Section 9 hereof for purposes of indemnification.

10.3. The Company and the Underwriter agree that it would not be just and equitable if contribution pursuant to this Section 10 was determined by pro rata allocation or by any other method of allocation which does not take account of the equitable considerations referred to in this Section 10.

10.4. Notwithstanding the provisions of this Section 10, the Underwriter shall not be required to contribute any amount in excess of the amount by which the total discounts and commissions received by the Underwriter in connection with the Securities distributed by it exceeds the amount of any damages the Underwriter has otherwise paid or become liable to pay by reason of any untrue or alleged untrue statement or omission or alleged omission. No person guilty of fraudulent misrepresentation (within the meaning of Section 11 of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation.

10.5. For purposes of this Section 10, each director, officer, employee and agent of the Underwriter and each person, if any, who controls the Underwriter within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act shall have the same rights to contribution as the Underwriter, and each director and officer of the Company who signed the Registration Statement, and each person, if any, who controls the Company with the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, shall have the same rights to contribution as the Company.

10.6. The remedies provided for in Section 9 and Section 10 hereof are not exclusive and shall not limit any rights or remedies which may otherwise be available to any Indemnified Person at law or in equity.

11. **Termination**.

11.1. Prior to the delivery of and payment for the Securities on the Closing Date or any Additional Closing Date, as the case may be, this Agreement may be terminated by the Underwriter in the absolute discretion of the Underwriter by notice given to the Company if after the execution and delivery of this Agreement: (i) trading or quotation of any securities issued or guaranteed by the Company shall have been suspended or materially limited on any securities exchange, quotation system or in the over-the-counter market; (ii) trading in securities generally on any of the New York Stock Exchange, the Nasdaq Stock Exchange or the over-the-counter market shall have been suspended or materially limited; (iii) a general banking moratorium on commercial banking activities shall have been declared by federal or New York state authorities; (iv) there shall have occurred a material disruption in commercial banking or securities settlement, payment or clearance services in the United States; (v) there shall have occurred any outbreak or escalation of national or international hostilities or any crisis or calamity, or any change in the United States or international financial markets, or any substantial change or development involving a prospective substantial change in general economic, financial or political conditions in the United States or internationally, as in the judgment of the Underwriter is material and adverse and makes it impracticable or inadvisable to proceed with the offering, sale or delivery of the Securities on the Closing Date or any Additional Closing Date, as the case may be, in the manner and on the terms described in the Pricing Disclosure Package or to enforce contracts for the sale of securities; or (vi) the Company or any of its subsidiaries shall have sustained a loss by strike, fire, flood, earthquake, accident or other calamity of such character as in the judgment of the Underwriter may interfere materially with the conduct of the business and operations of the Company and its subsidiaries, considered as one entity, regardless of whether or not such loss shall have been insured.

11.2. Any termination pursuant to this Section 11 shall be without liability on the part of: (x) the Company to the Underwriter, except that the Company shall continue to be liable for the payment of expenses under Section 7; (y) the Underwriter to the Company; or (z) any party hereto to any other party except that the provisions of Section 9, Section 10 and this Section 11 hereof shall at all times be effective and shall survive any such termination. In the event this Agreement is terminated pursuant to this Section 11, the Underwriter shall be entitled to (a) cash compensation of 8.0% of the gross proceeds and (b) warrants to purchase 5.0% of the number of Shares sold, on the same terms set forth in Section 4.3 hereof, both with respect to any public or private offering or other financing or capital raising transaction of any kind ("**Tail Financing**") to the extent that such financing or capital is provided to the Company by investors the Underwriter has introduced to and/or contacted on behalf of the Company through an in-person, electronic or telephonic communication or investors that Spartan had "wall-crossed" in connection with this offering (or any entity under common management or having a common investment advisor), if such Tail Financing is consummated at any time within the twelve (12) months period beginning on the Closing Date or expiration or termination of this Agreement. Notwithstanding anything to the contrary contained herein, the Company has the right to terminate this Agreement for cause in compliance with FINRA Rule 5110(g)(5)(B)(i). The exercise of such right of termination for cause eliminates the Company's obligations with respect to the provisions relating to Right of First Refusal and Tail Financing.

12. **Reimbursement of the Underwriter's Expenses**. If (a) the Company fails to deliver the Securities to the Underwriter for any reason at the Closing Date or any Additional Closing Date, as the case may be, in accordance with this Agreement or (b) the Underwriter declines to purchase the Securities for any reason permitted under this Agreement, then the Company agrees to reimburse the Underwriter for all reasonable out-of-pocket costs and expenses (including the reasonable and documented fees and expenses of Underwriter Counsel) incurred by the Underwriter in connection with this Agreement and the applicable offering contemplated hereby.

13. **Representations and Indemnities to Survive Delivery**. The respective indemnities, rights of contribution, agreements, representations, warranties and other statements of the Company and the Underwriter set forth in or made pursuant to this Agreement or made by or on behalf of the Company or the Underwriter pursuant to this Agreement or any certificate delivered pursuant hereto shall remain in full force and effect, regardless of any investigation made by or on behalf of the Underwriter, the Company or any of their respective officers or directors or any controlling person, as the case may be, and shall survive delivery of and payment for the Securities sold hereunder and any termination of this Agreement.

14. **Notices**. All notices, requests, consents, claims, demands, waivers and other communications under this Agreement shall be in writing and shall be deemed to have been duly given (i) when delivered by hand (with written confirmation of receipt), (ii) when received by the addressee if sent by a nationally recognized overnight courier (receipt requested), (iii) on the date sent by facsimile (with confirmation of transmission) or email of a PDF document if sent during normal business hours of the recipient, and on the next Business Day if sent after normal business hours of the recipient, or (iv) on the third (3rd) Calendar Day after the date mailed, by certified or registered mail (in each case, return receipt requested, postage pre-paid). Such communications must be sent to the respective parties at the following addresses (or at such other address for a party as shall be specified in a notice given in accordance with this Section 14):

If to the Underwriter: Spartan Capital Securities, LLC
45 Broadway, 19th Floor New York, NY 10006

Email: kmonchik@spartancapital.com
Attention: Kim Monchik

with a copy to: Kaufman & Canoles, P.C.
Two James Center, 14th Floor, 1021 E. Cary St., Richmond, VA 23219

Email: awbasch@kaufcan.com
Attention: Anthony Basch

If to the Company: Lixte Biotechnology Holdings, Inc.
680 East Colorado Boulevard, Suite 180
Pasadena, CA 91101

Email: g.pursglove@2gpgroup.com
Attention: Geordan Pursglove

with copy to: TroyGould PC
1801 Century Park East, 16th Floor
Los Angeles, CA 90067

Email: dlf@troygould.com

Attention: David L. Ficksman

Any party hereto may change the address or facsimile number for receipt of communications by giving written notice to the others in accordance with this Section 14.

15. **Successors**. This Agreement shall inure solely to the benefit of and be binding upon the Underwriter, the Company and the other indemnified parties referred to in Section 9 and Section 10 hereof, and in each case their respective successors. Nothing in this Agreement is intended, or shall be construed, to give any other person or entity any legal or equitable right, benefit, remedy or claim under, or in respect of or by virtue of, this Agreement or any provision contained herein. The term "successors," as used herein, shall not include any purchaser of the Securities from the Underwriter merely by reason of such purchase.

16. **Partial Unenforceability**. The invalidity or unenforceability of any Section, paragraph or provision of this Agreement shall not affect the validity or enforceability of any other Section, paragraph or provision hereof. If any Section, paragraph or provision of this Agreement is for any reason determined to be invalid or unenforceable, there shall be deemed to be made such minor changes (and only such minor changes) as are necessary to make it valid and enforceable.

17. **Governing Law**. This Agreement and any claim, controversy or dispute arising under or related to this Agreement, whether sounding in contract, tort or statute, shall be governed by and construed in accordance with the internal laws of the State of New York applicable to agreements made and to be performed in such state (including its statute of limitations), without giving effect to the conflict of laws provisions thereof to the extent such principles or rules would require or permit the application of the laws of any jurisdiction other than those of the State of New York. The Company has irrevocably appointed Geordan Pursglove , as its agent to receive service of process or other legal summons for purposes of any such suit, action or proceeding that may be instituted.

18. **Arbitration**. Any controversy between the parties to this Agreement, or arising out of the Agreement, shall be resolved by arbitration before the American Arbitration Association ("AAA'') or FINRA arbitration in New York, New York. This Agreement to arbitrate should be read in conjunction with the following disclosures:

ARBITRATION IS FINAL AND BINDING ON THE PARTIES;

THE PARTIES ARE WAIVING THEIR RIGHT TO SEEK REMEDIES IN COURT, INCLUDING THE RIGHT TO JURY TRIAL;

PRE-ARBITRATION DISCOVERY IS GENERALLY MORE LIMITED THAN AND DIFFERENT FROM COURT PROCEEDING; AND

THE ARBITRATORS' AWARD IS NOT REQUIRED TO INCLUDE FACTUAL FINDING OR LEGAL REASONING AND ANY PARTY'S RIGHT TO APPEAL OR TO SEEK MODIFICATION OF RULINGS BY THE ARBITRATORS IS STRICTLY LIMITED

19. **No Fiduciary Relationship**. The Company acknowledges and agrees that: (i) the purchase and sale of the Securities pursuant to this Agreement, including the determination of the offering price of the Securities and any related discounts and commissions, is an arm's-length commercial transaction between the Company, on the one hand, and the Underwriter, on the other hand; (ii) in connection with each transaction contemplated hereby and the process leading to such transaction the Underwriter is and has been acting solely as a principal and is not the agent or fiduciary of the Company or its Affiliates, stockholders, members, partners, creditors or employees or any other party; (iii) the Underwriter has not assumed and will not assume an advisory or fiduciary responsibility in favor of the Company with respect to any of the transactions contemplated hereby or the process leading thereto (irrespective of whether the Underwriter has advised or is currently advising the Company on other matters) or any other obligation to the Company except the obligations expressly set forth in this Agreement; (iv) the Underwriter and its respective Affiliates may be engaged in a broad range of transactions that involve interests that differ from those of the Company, and the Underwriter has no obligation to disclose any of such interests by virtue of any fiduciary or advisory relationship; and (v) the Underwriter has not provided any legal, accounting, regulatory or tax advice in any jurisdiction with respect to the offering contemplated hereby, and the Company has consulted its own legal, accounting, regulatory and tax advisors to the extent they deemed appropriate. The Company waives and releases, to the full extent permitted by applicable law, any claims it may have against the Underwriter arising from an alleged breach of fiduciary duty in connection with the offering of the Securities or any matters leading up to the offering of the Securities.

20. **Compliance with the USA Patriot Act**. In accordance with the requirements of the USA Patriot Act (Title III of Pub. L. 107-56 (signed into law October 26, 2001)), the Underwriter is required to obtain, verify and record information that identifies their respective clients, including the Company, which information may include the name and address of its clients, as well as other information that will allow the Underwriter to properly identify their respective clients.

21. **Entire Agreement**. This Agreement, together with any contemporaneous written agreements and any prior written agreements (to the extent not superseded by this Agreement) that relate to the offering of the Securities, represents the entire agreement among the Company and the Underwriter with respect to the preparation of the Registration Statement, the Pricing Disclosure Package, the Final Prospectus, each Preliminary Prospectus, each Issuer Free Writing Prospectus, each Testing-the-Waters Communication and each Road Show, the purchase and sale of the Securities and the conduct of the offering contemplated hereby.

22. **Amendments or Waivers**. No amendment or waiver of any provision of this Agreement, nor any consent or approval to any departure therefrom, shall in any event be effective unless the same shall be in writing and signed by all the parties hereto. No waiver by any party shall operate or be construed as a waiver in respect of any failure, breach or default not expressly identified by such written waiver, whether of a similar or different character, and whether occurring before or after the waiver. No failure to exercise, or delay in exercising, any right, remedy, power or privilege arising from this Agreement shall operate or be construed as a waiver thereof; nor shall any single or partial exercise of any right, remedy, power or privilege hereunder preclude any other or further exercise of any other right, remedy, power or privilege.

23. **Section Headings**. The headings herein are included for convenience of reference only and are not intended to be part of, or to affect the meaning or interpretation of, this Agreement.

24. **Counterparts**. This Agreement may be executed in counterparts, each of which will be deemed an original, but all of which together will be deemed to be one and the same agreement. Counterparts may be delivered via facsimile, email (including PDF or any electronic signature complying with the U.S. federal ESIGN Act of 2000) or other transmission method, and any counterpart so delivered will be deemed to have been duly and validly delivered and be valid and effective for all purposes.

25. **Recognition of the U.S. Special Resolution Regimes**.

25.1. In the event that the Underwriter is a Covered Entity (as defined below) becomes subject to a proceeding under a U.S. Special Resolution Regime, the transfer from the Underwriter of this Agreement, and any interest and obligation in or under this Agreement, will be effective to the same extent as the transfer would be effective

under the U.S. Special Resolution Regime (as defined below) if this Agreement, and any such interest and obligation, were governed by the laws of the United States or a state of the United States.

25.2. In the event that the Underwriter is a Covered Entity or a BHC Act Affiliate (as defined below) of the Underwriter becomes subject to a proceeding under a U.S. Special Resolution Regime, Default Rights (as defined below) under this Agreement that may be exercised against the Underwriter is permitted to be exercised to no greater extent than such Default Rights could be exercised under the U.S. Special Resolution Regime if this Agreement were governed by the laws of the United States or a state of the United States.

25.3. As used in this section:

25.3.1. "**BHC Act Affiliate**" has the meaning assigned to the term "affiliate" in, and shall be interpreted in accordance with, 12 U.S.C. § 1841(k).

25.3.2. "**Covered Entity**" means any of the following:

25.3.2.1 a "covered entity" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 252.82(b);

25.3.2.2 a "covered bank" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 47.3(b); or

25.3.2.3 a "covered FSI" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 382.2(b).

25.3.3. "**Default Right**" has the meaning assigned to that term in, and shall be interpreted in accordance with, 12 C.F.R. §§ 252.81, 47.2 or 382.1, as applicable.

25.3.4. "**U.S. Special Resolution Regime**" means each of (i) the Federal Deposit Insurance Act and the regulations promulgated thereunder and (ii) Title II of the Dodd-Frank Wall Street Reform and Consumer Protection Act and the regulations promulgated thereunder.

[LIXT Underwriting Agreement Signature Page Follows]

[LIXT Underwriting Agreement Signature Page]

If the foregoing is in accordance with your understanding, please indicate your acceptance of this Agreement by signing in the space provided below.

Very truly yours,
LIXTE BIOTECHNOLOGY HOLDINGS, INC.

By: _____
Name: Geordan Pursglove
Title: Chief Executive Officer

Confirmed and accepted as of the date first above written:

SPARTAN CAPITAL SECURITIES, LLC

By: _____
Name:
Title:

SCHEDULE 1.11

Pricing Disclosure Package

Number of Closing Securities:		[●]
Number of Closing Shares:		[●]
Number of Closing Pre-funded Warrants:		[●]
Number of Underwriter Warrants		[●]
Number of Option Shares:		[●]
Public Offering Price per Common Share:	$	[●]
Public Offering Price per Pre-funded Warrant:	$	[●]
Exercise Price per Pre-funded Warrant:	$	0.00001
Exercise Price per Underwriter Warrant:	$	[●]
Underwriting Discount per Common Share and Pre-funded Warrant:	$	[●]
Purchase Price per Option Share:	$	[●]

SCHEDULE 2.5.4

Free Writing Prospectuses

SCHEDULE 2.44

Principal Subsidiaries

Principal Subsidiaries	Place of Incorporation
[●]	[●]

SCHEDULE 4.1.2

Closing Securities

Underwriter	Number of Closing Securities to Be Purchased	Number of Option Securities to Be Purchased if the Maximum Over-Allotment Option Is Exercised
Spartan Capital Securities, LLC	[●]	[●]
Total:	**[●]**	**[●]**

EXHIBIT 5.9.3.1

Form of Lock-Up Waiver

[●], 202[●]

[Waiver Recipient Name and Address]

Re: Lock-Up Agreement Waiver

Ladies and Gentlemen:

[Pursuant to Section 8.9 of the Underwriting Agreement, dated [●], 2025 (the "**Underwriting Agreement**"), among Lixte Biotechnology Holdings, Inc., a Delaware corporation (the "**Company**"), and Spartan Capital Securities, LLC (the "**Underwriter**"), and the Lock-Up Agreement, dated [●], 2025 (the "**Lock-Up Agreement**"), between you and the Underwriter relating to the Company's shares of Common Stock, $0.0001 par value per share (the "**Share**"), the Underwriter hereby gives its consent to allow you to sell up to [●] Share [solely from and including [DATE] to and including [DATE]].]

[Pursuant to Section 5.9 of the Underwriting Agreement, the Underwriter hereby gives its consent to allow the Company to issue and sell up to [●] Shares pursuant to an offering of the Shares to commence prior to the expiration of the Lock-Up Period as defined in the Underwriting Agreement[, provided that such offering closes on or prior to [●]].]

SPARTAN CAPITAL SECURITIES, LLC

By: _____
Name: Kim Monchik
Title: Chief Executive Officer

EXHIBIT 5.9.3.2

Form of Lock-Up Waiver Press Release

Lixte Biotechnology Holdings, Inc.

[Date]

Lixte Biotechnology Holdings, Inc., a Delaware corporation (the "Company") announced today that Spartan Capital Securities, LLC, acting as the Underwriter in the Company's recent public offering of the Company's Common Stock and Pre-Funded Warrants to purchase one (1) share of Common Stock, is [waiving] [releasing] a lock-up restriction with respect to the Company's shares of Common Stock held by [certain officers or directors] [an officer or director] of the Company. The [waiver] [release] will take effect on [Date], and the Shares may be sold on or after such date.

This press release is not an offer or sale of the securities in the United States or in any other jurisdiction where such offer or sale is prohibited, and such securities may not be offered or sold in the United States absent registration or an exemption from registration under the Securities Act of 1933, as amended.

EXHIBIT 8.9

Form of Lock-Up Agreement

EXHIBIT 8.10

Form of Underwriter's Warrant Agreement

Exhibit 5.1

TroyGould pc
1801 Century Park East, 16th Floor
Los Angeles, California 90067-2367
Tel (310) 553-4441 | **Fax** (310) 201-4746
www.troygould.com

David L. Ficksman ● (310) 789-1290 ● dficksman@troygould.com

File No.

June 17, 2025

Lixte Biotechnology Holdings, Inc.
680 East Colorado Boulevard, Suite 180
Pasadena, CA 91101

Dear Ladies and Gentlemen:

We have acted as counsel to Lixte Biotechnology Holdings, Inc., a Delaware corporation (the "Company"), in connection with the Registration Statement on Form S-1 (as amended, the "Registration Statement") filed by the Company on June 17, 2025 with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), and the related prospectus contained therein (the "Prospectus"). The Registration Statement relates to the offering by the Company of up to a maximum aggregate offering of $6,000,000: (i) of shares (the "Shares") of common stock, par value $0.0001 per share, of the Company (the "Common Stock") (or, to each purchaser whose purchase of shares of Common Stock in such offering would otherwise result in the purchaser, together with its affiliates and certain related parties, beneficially owning more than 4.99% (or, at the election of the purchaser, 9.99%) of the Company's outstanding Common Stock immediately following the consummation of such offering, one pre-funded warrant (the "Pre-Funded Warrant") and the shares of Common Stock issuable from time to time upon exercise of the Pre-Funded Warrant (the "Pre-Funded Warrant Shares"), in lieu of a share of Common Stock, and (ii) additional Shares for which the underwriter has been granted an over-allotment option (the "Over-Allotment Option"). The Common Stock and Pre-Funded Warrants are referred to herein collectively as the "Securities."

The terms "Shares," "Pre-Funded Warrants," "Pre-Funded Warrant Shares," and "Securities" shall include any additional securities registered by the Company pursuant to Rule 462(b) under the Act in connection with the offering contemplated by the Registration Statement. This opinion is being furnished in connection with the requirements of Item 601(b)(5) of Regulation S-K under the Act, and no opinion is expressed herein as to any matter pertaining to the contents of the Registration Statement or related prospectus, other than as expressly stated herein with respect to the issue of the Shares, Pre-Funded Warrants and Pre-Funded Warrant Shares. The Securities are being sold pursuant to an Underwriting Agreement to be entered into between the Company and Spartan Capital Securities, LLC. in the form most recently filed as an exhibit to the Registration Statement (the "Underwriting Agreement").

In connection with our opinion, we have examined the Registration Statement, including the exhibits thereto and the form of Pre-Funded Warrant, and such other documents, corporate records and instruments, and have examined such laws and regulations, as we have deemed necessary for the purposes of this opinion. In making our examination, we have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals, the conformity with the originals of all documents submitted to us as copies and the legal capacity of all natural persons. As to matters of fact material to our opinions in this letter, we have relied on certificates and statements from officers and other employees of the Company, public officials and other appropriate persons.

Based on the foregoing and subject to the qualifications set forth below, we are of the opinion that:

1. The Shares, when issued by the Company against payment therefor in the circumstances contemplated by the Prospectus, will have been duly authorized for issuance by all necessary corporate action of the Company, and will be validly issued, fully paid and non-assessable.
2. The Pre-Funded Warrants when issued by the Company against payment therefor in the circumstances contemplated by the Prospectus, will have been duly authorized by all necessary corporate action of the Company and will constitute a valid and binding agreement of the Company enforceable against the Company in accordance with its terms.
3. The Pre-Funded Warrant Shares initially issuable upon exercise of the Pre-Funded Warrants, when issued by the Company against payment therefor (not less than par value) in the circumstances contemplated by the Pre-Funded Warrants will have been duly authorized by all necessary corporate action of the Company, and will be validly issued, fully paid and non-assessable.

The opinions set forth above are subject to the following qualifications:

A. The opinion expressed herein with respect to the legality, validity, binding nature and enforceability of the Pre-Funded Warrants is subject to (i) applicable laws relating to bankruptcy, insolvency, reorganization, moratorium, fraudulent transfer or other similar laws affecting creditors' rights generally, whether now or hereafter in effect and (ii) general principles of equity, including, without limitation, concepts of materiality, laches, reasonableness, good faith and fair dealing and the principles regarding when injunctive relief or other equitable remedies will be available (regardless of whether considered in a proceeding at law or in equity).

B. The foregoing opinions are limited to the General Corporation Law of Delaware (which includes those statutory provisions and all applicable provisions of the Delaware Constitution and the reported judicial decisions interpreting such laws) and the federal laws of the United States of America, and we express no opinion as to the laws of any other jurisdiction.

The opinions expressed in this opinion letter are as of the date of this opinion letter only and as to laws covered hereby only as they are in effect on that date, and we assume no obligation to update or supplement such opinion to reflect any facts or circumstances that may come to our attention after that date or any changes in law that may occur or become effective after that date. The opinions herein are limited to the matters expressly set forth in this opinion letter, and no opinion or representation is given or may be inferred beyond the opinions expressly set forth in this opinion letter.

We hereby consent to the filing of this opinion with the Commission as an exhibit to the Registration Statement and to the use of this firm's name under the caption "Legal Matters" in the Registration Statement. In giving this consent, we do not thereby admit that we are within the category of persons whose consent is required under

Section 7 of the Securities Act or the rules and regulations of the Commission promulgated thereunder.

Very truly yours,

/s/ TroyGould PC

TroyGould PC

Exhibit 10.26

REGISTERED PRE-FUNDED WARRANT TO PURCHASE COMMON STOCK

LIXTE BIOTECHNOLOGY HOLDINGS, INC.

Warrant Shares: [●]

Initial Exercise Date: [●], 2025
Issuance Date: [●], 2025

THIS PRE-FUNDED WARRANT TO PURCHASE COMMON STOCK (the "**Warrant**") certifies that, for value received, [●] or its assigns (the "**Holder**") is entitled, upon the terms and subject to the limitations on exercise and the conditions hereinafter set forth, at any time until this Warrant is exercised in full (the "**Termination Date**"), to subscribe for and purchase from Lixte Biotechnology Holdings, Inc., a Delaware corporation (the "**Company**"), up to [●] shares (as subject to adjustment hereunder, the "**Warrant Shares**") of Common Stock. Subject to the provisions of Section 2.3, the purchase price of one (1) share of Common Stock under this Warrant shall be equal to the Exercise Price, as defined in Section 2.2. This Warrant shall initially be issued and maintained in the form of a security held in book-entry form and the Depository Trust Company or its nominee ("**DTC**") shall initially be the sole registered holder of this Warrant.

1. **Definitions**. In addition to the terms defined elsewhere in this Warrant or in the Underwriting Agreement dated [●], 2025 by and among the Company and the investors (the "**Purchasers**") referred to therein (the "**Securities Purchase Agreement**"), the following terms have the meanings indicated in this Section 1:

1.1. "**Affiliate**" means any Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with a Person, as such terms are used in and construed under Rule 405 under the Securities Act.

1.2. "**Bid Price**" means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the bid price of the Common Stock for the time in question (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on the Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Warrants then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

1.3. "**Board of Directors**" means the board of directors of the Company.

1.4. "**Business Day**" means a Calendar Day other than a Saturday, Sunday or any other Calendar Day which is a federal legal holiday in the United States or any Calendar Day on which the commercial banks in the City of New York are required by law or other governmental action to close, provided that the commercial banks in the City of New York shall not be deemed to be required to be closed due to a "stay at home," "shelter in place," "non-essential employee" or similar orders or restrictions or the closure of any physical branch locations at the direction of any governmental authority so long as the electronic funds transfer systems (including for wire transfers) of commercial banks in the City of New York generally are open for use by customers on such Calendar Day.

1.5. "**Calendar Day**" means each and every day of the week (Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday).

1.6. "**Commission**" means the United States Securities and Exchange Commission.

1.7. "**Common Stock**" means the common stock of the Company, $0.0001 par value per share, and any other class of securities into which such securities may hereafter be reclassified or changed.

1.8. "**Common Stock Equivalents**" means any securities of the Company or the Subsidiaries which would entitle the holder thereof to acquire at any time Common Stock, including, without limitation, any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock.

1.9. "**Exchange Act**" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

1.10. "**Exempt Issuance**" means (i) any conventional bank loans that are not convertible into, or exercisable or exchangeable for, shares of Common Stock or Common Stock Equivalents and do not involve any issuance of any shares of Common Stock or Common Stock Equivalents or other security of the Company in connection therewith; (ii) shares of Common Stock or options issued to employees, officers or directors of the Company pursuant to the Company's equity incentive plans or pursuant to the compensation agreements previously authorized by the Board of Directors; (iii) securities issued upon the exercise or exchange of or conversion of any Securities issued hereunder and/or other securities exercisable or exchangeable for or convertible into shares of Common Stock issued and outstanding on the date of this Agreement, provided that such securities have not been amended since the date of this Agreement to increase the number of such securities or to decrease the exercise price, exchange price or conversion price of such securities (other than in connection with stock splits or combinations) or to extend the term of such securities; and (iv) securities issued pursuant to acquisitions or strategic transactions (whether by merger, consolidation, purchase of equity, purchase of assets, reorganization or otherwise) approved by a majority of the disinterested directors of the Company, provided that such securities are issued as "restricted securities" (as defined in Rule 144) and carry no registration rights that require or permit the filing of any registration statement in connection therewith during the sixty (60) days following the Release Date, and provided that any such issuance shall only be to a Person (or to the equityholders of a Person) which is, itself or through its subsidiaries, an operating company or an owner of an asset in a business synergistic with the business of the Company and shall provide to the Company additional benefits in addition to the investment of funds, but shall not include a transaction in which the Company is issuing securities primarily for the purpose of raising capital or to an entity whose primary business is investing in securities.

1.11. "**Person**" means an individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

1.12. "**Registration Statement**" means the Company's registration statement on Form S-1 (File No. 333-[●]).

1.13. "**Release Date**" means the Closing Date.

1.14. "**Securities Act**" means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

1.15. "**Subsidiary**" means any subsidiary of the Company and shall, where applicable, also include any direct or indirect subsidiary of the Company formed or acquired after the date hereof.

1.16. "**Trading Day**" means a Calendar Day on which the principal Trading Market is open for trading.

1.17. "**Trading Market**" means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE American, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market, the New York Stock Exchange, OTCQB or OTCQX (or any successors to any of the foregoing).

1.18. "**Transfer Agent**" means Computershare Trust Company, N.A., the current transfer agent of the Company, with a mailing address of 150 Royall Street, Suite 101 Canton, MA 02021 and an email address of [●], and any successor transfer agent of the Company.

1.19. "**Underwriting Agreement**" means the underwriting agreement, dated as of [●], 2025, between the Company and Spartan Capital Securities, LLC, as amended, modified or supplemented from time to time in accordance with its terms.

1.20. "**VWAP**" means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on the Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the holders of a majority in interest of the Warrants then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

1.21. "**Warrants**" means this Warrant and other Common Stock purchase warrants issued by the Company pursuant to the Registration Statement.

2. **Exercise**.

2.1. **Exercise of Warrant**. Exercise of the purchase rights represented by this Warrant may be made, in whole or in part, at any time or times on or after the Initial Exercise Date and on or before the Termination Date by delivery to the Company of a duly executed PDF copy submitted by e-mail (or e-mail attachment) of the Notice of Exercise substantially in the form attached hereto as Exhibit 2.1 (the "**Notice of Exercise**"). Within the earlier of (i) one (1) Trading Day and (ii) the number of Trading Days comprising the Standard Settlement Period (as defined in Section 2.5.1 herein) following the date of exercise as aforesaid, the Holder shall deliver the aggregate Exercise Price for the Warrant Shares specified in the applicable Notice of Exercise by wire transfer or cashier's check drawn on a United States bank unless the cashless exercise procedure specified in Section 2.3 below is specified in the applicable Notice of Exercise. No ink-original Notice of Exercise shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Exercise be required. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company until the Holder has purchased all of the Warrant Shares available hereunder and the Warrant has been exercised in full, in which case, the Holder shall surrender this Warrant to the Company for cancellation within three (3) Trading Days after the date on which the final Notice of Exercise is delivered to the Company. Partial exercises of this Warrant resulting in purchases of a portion of the total number of Warrant Shares available hereunder shall have the effect of lowering the outstanding number of Warrant Shares purchasable hereunder in an amount equal to the applicable number of Warrant Shares purchased. The Holder and the Company shall maintain records showing the number of Warrant Shares purchased and the date of such purchases. The Company shall deliver any objection to any Notice of Exercise within one (1) Trading Day after receipt of such notice. **The Holder and any assignee, by acceptance of this Warrant, acknowledge and agree that, by reason of the provisions of this paragraph, following the purchase of a portion of the Warrant Shares hereunder, the number of Warrant Shares available for purchase hereunder at any given time may be less than the amount stated on the face hereof.**

Notwithstanding the foregoing in this Section 2.1, a holder whose interest in this Warrant is a beneficial interest in certificate(s) representing this Warrant held in book-entry form through DTC (or another established clearing corporation performing similar functions), shall effect exercises made pursuant to this Section 2.1 by delivering to DTC (or such other clearing corporation, as applicable) the appropriate instruction form for exercise, complying with the procedures to effect exercise that are required by DTC (or such other clearing corporation, as applicable).

2.2. **Exercise Price**. The aggregate exercise price of this Warrant, except for a nominal exercise price of $0.00001 per Warrant Share, subject to adjustment hereunder (such nominal exercise price, the "**Exercise Price**"), was pre-funded to the Company on or prior to the Initial Exercise Date and, consequently, no additional consideration (other than such Exercise Price) shall be required to be paid by the Holder to any Person to effect any exercise of this Warrant. The Holder shall not be entitled to the return or refund of all, or any portion, of such pre-paid aggregate exercise price under any circumstance or for any reason whatsoever. The remaining unpaid exercise price per Warrant Share is $0.00001.

2.3. **Cashless Exercise**. This Warrant may also be exercised, in whole or in part, by means of a "cashless exercise" in which the Holder shall be entitled to receive a number of Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:

(A) = as applicable: (i) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise if such Notice of Exercise is (1) delivered pursuant to Section 2.1 hereof on a Calendar Day that is not a Trading Day or (2) delivered pursuant to Section 2.1 hereof on a Trading Day prior to the opening of "regular trading hours" (as defined in Rule 600(b) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) at the option of the Holder, either (y) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise or (z) the highest Bid Price of the Common Stock on the principal Trading Market as reported by Bloomberg L.P. within two (2) hours of the Holder's delivery of the Notice of Exercise pursuant to Section 2.1 hereof if such Notice of Exercise is delivered during "regular trading hours," or within two (2) hours after the close of "regular trading hours" on a Trading Day or (iii) the VWAP on the date of the applicable Notice of Exercise if the date of such Notice of Exercise is a Trading Day and such Notice of Exercise is delivered pursuant to Section 2.1 hereof two (2) or more hours following the close of "regular trading hours" on such Trading Day;

(B) = the Exercise Price of this Warrant, as adjusted hereunder; and

(X) = the number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

2.4. **Holding Period for Cashless Exercise**. If Warrant Shares are issued in a cashless exercise, the parties acknowledge and agree that in accordance with Section 3(a)

(9) of the Securities Act, the Warrant Shares shall take on the registered characteristics of the Warrants being exercised. Assuming (i) the Holder is not an Affiliate of the Company, and (ii) all of the applicable conditions of Rule 144 promulgated under the Securities Act with respect to Holder and the Warrant Shares are met in the case of such a cashless exercise, the Company agrees that the Company will cause the removal of the legend from such Warrant Shares (including by delivering an opinion of TroyGould PC to the Company's Transfer Agent at its own expense to ensure the foregoing), and the Company agrees that the Holder is under no obligation to sell the Warrant Shares issuable upon the exercise of the Warrant prior to removing the legend. The Company agrees not to take any position contrary to this Section 2.4.

2.5. **Mechanics of Exercise**.

2.5.1. **Delivery of Warrant Shares upon Exercise**. The Company shall cause the Warrant Shares purchased hereunder to be transmitted by the Transfer Agent to the Holder by crediting the account of the Holder's or its designee's balance account with The Depository Trust Company through its Deposit or Withdrawal at Custodian system ("**DWAC**") if the Company is then a participant in such system and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares to or resale of the Warrant Shares by Holder or (B) this Warrant is being exercised via cashless exercise and otherwise by physical delivery of a certificate or by electronic delivery (at the election of the Holder), for the number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the address specified by the Holder in the Notice of Exercise by the date that is the earlier of (i) one (1) Trading Day after the delivery to the Company of the Notice of Exercise and (ii) the number of Trading Days comprising the Standard Settlement Period after the delivery to the Company of the Notice of Exercise (such date, the "**Warrant Share Delivery Date**"). Upon delivery of the Notice of Exercise, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date of delivery of the Warrant Shares, provided that payment of the aggregate Exercise Price (other than in the case of a cashless exercise) is received within the earlier of (i) one (1) Trading Day and (ii) the number of Trading Days comprising the Standard Settlement Period following delivery of the Notice of Exercise. Notwithstanding anything herein to the contrary, upon delivery of the Notice of Exercise, the Holder shall immediately be deemed for purposes of Regulation SHO under the Exchange Act to have become the holder of the Warrant Shares irrespective of the date of delivery of the Warrant Shares. If the Company fails for any reason to deliver to the Holder the Warrant Shares subject to a Notice of Exercise by the Warrant Share Delivery Date, the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each $1,000 of Warrant Shares subject to such exercise (based on the VWAP of the Common Stock on the date of the applicable Notice of Exercise), $10 per Trading Day (increasing to $20 per Trading Day on the third (3rd) Trading Day after the Warrant Share Delivery Date) for each Trading Day after such Warrant Share Delivery Date until such Warrant Shares are delivered or Holder rescinds such exercise. The Company agrees to maintain a Transfer Agent that is a participant in the FAST program so long as this Warrant remains outstanding and exercisable. As used herein, "**Standard Settlement Period**" means the standard settlement period, expressed in a number of Trading Days, on the Company's primary Trading Market with respect to the Common Stock as in effect on the date of delivery of the Notice of Exercise. Notwithstanding the foregoing, with respect to any Notice(s) of Exercise delivered on or prior to 12:00 p.m. (New York City time) on the Initial Exercise Date, which may be delivered at any time after the time of execution of the Underwriting Agreement, the Company agrees to deliver the Warrant Shares subject to such notice(s) by 4:00 p.m. (New York City time) on the Initial Exercise Date and the Initial Exercise Date shall be the Warrant Share Delivery Date for purposes hereunder, provided that payment of the aggregate Exercise Price (other than in the case of a cashless exercise) is received by such Warrant Share Delivery Date.

2.5.2. **Delivery of New Warrants Upon Exercise**. If this Warrant shall have been exercised in part, the Company shall, at the request of a Holder and upon surrender of this Warrant certificate, at the time of delivery of the Warrant Shares, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased Warrant Shares called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant.

2.5.3. **Rescission Rights**. If the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares pursuant to Section 2.5.1 by the Warrant Share Delivery Date, then the Holder will have the right to rescind such exercise.

2.5.4. **Compensation for Buy-In on Failure to Timely Deliver Warrant Shares upon Exercise**. In addition to any other rights available to the Holder, if the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares in accordance with the provisions of Section 2.5.1 above pursuant to an exercise on or before the Warrant Share Delivery Date, and if after such date the Holder is required by its broker to purchase (in an open market transaction or otherwise) or the Holder's brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by the Holder of the Warrant Shares which the Holder anticipated receiving upon such exercise (a "**Buy-In**"), then the Company shall (A) pay in cash to the Holder the amount, if any, by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased exceeds (y) the amount obtained by multiplying (1) the number of Warrant Shares that the Company was required to deliver to the Holder in connection with the exercise at issue times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored and return any amount received by the Company in respect of the Exercise Price for those Warrant Shares (in which case such exercise shall be deemed rescinded) or deliver to the Holder the number of shares of Common Stock that would have been issued had the Company timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Stock having a total purchase price of $11,000 to cover a Buy-In with respect to an attempted exercise of shares of Common Stock with an aggregate sale price giving rise to such purchase obligation of $10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder $1,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver shares of Common Stock upon exercise of the Warrant as required pursuant to the terms hereof.

2.5.5. **No Fractional Shares or Scrip**. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Warrant. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such exercise, the Company shall, at its election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Exercise Price or round up to the next whole share.

2.5.6. **Charges, Taxes and Expenses**. Issuance of Warrant Shares shall be made without charge to the Holder for any issue or transfer tax or other incidental expense in respect of the issuance of such Warrant Shares, all of which taxes and expenses shall be paid by the Company, and such Warrant Shares shall be issued in the name of the Holder or in such name or names as may be directed by the Holder; provided, however, that, in the event that Warrant Shares are to be issued in a name other than the name of the Holder, this Warrant when surrendered for exercise shall be accompanied by the Assignment Form attached hereto as Exhibit 2.5.6 duly executed by the Holder and the Company may require, as a condition thereto, the payment of a sum sufficient to reimburse it for any transfer tax incidental thereto. The Company shall pay all Transfer Agent fees required for same-Trading Day processing of any Notice of Exercise and all fees to the Depository Trust Company (or another established clearing corporation performing similar functions) required for same-Trading Day electronic delivery of the Warrant Shares.

2.5.7. **Closing of Books**. The Company will not close its stockholder books or records in any manner which prevents the timely exercise of this Warrant, pursuant to the terms hereof.

2.6. **Holder's Exercise Limitations**. The Company shall not effect any exercise of this Warrant, and a Holder shall not have the right to exercise any portion of this Warrant, pursuant to Section 2 or otherwise, to the extent that after giving effect to such issuance after exercise as set forth on the applicable Notice of Exercise, the Holder (together with the Holder's Affiliates, and any other Persons acting as a group together with the Holder or any of the Holder's Affiliates (such Persons, "**Attribution Parties**")), would beneficially own in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by the Holder and its Affiliates and Attribution Parties shall include the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which would

be issuable upon (i) exercise of the remaining, unexercised portion of this Warrant beneficially owned by the Holder or any of its Affiliates or Attribution Parties and (ii) exercise or conversion of the unexercised or unconverted portion of any other securities of the Company (including, without limitation, any other Common Stock Equivalents) subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Holder or any of its Affiliates or Attribution Parties. Except as set forth in the preceding sentence, for purposes of this Section 2.6, beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, it being acknowledged by the Holder that the Company is not representing to the Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and the Holder is solely responsible for any schedules required to be filed in accordance therewith. To the extent that the limitation contained in this Section 2.6 applies, the determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable shall be in the sole discretion of the Holder, and the submission of a Notice of Exercise shall be deemed to be the Holder's determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable, in each case subject to the Beneficial Ownership Limitation, and the Company shall have no obligation to verify or confirm the accuracy of such determination. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. For purposes of this Section 2.6, in determining the number of outstanding shares of Common Stock, a Holder may rely on the number of outstanding shares of Common Stock as reflected in (A) the Company's most recent periodic or annual report filed with the Commission, as the case may be, (B) a more recent public announcement by the Company or (C) a more recent written notice by the Company or the Transfer Agent setting forth the number of shares of Common Stock outstanding. Upon the written or oral request of a Holder, the Company shall within one (1) Trading Day confirm orally and in writing to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by the Holder or its Affiliates or Attribution Parties since the date as of which such number of outstanding shares of Common Stock was reported. The "**Beneficial Ownership Limitation**" shall be 4.99% of the number of shares of Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon exercise of this Warrant. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 2.6 to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation herein contained or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Warrant.

3. **Certain Adjustments**.

3.1. **Stock Dividends and Splits**. If the Company, at any time while this Warrant is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions on shares of Common Stock or any other equity or equity equivalent securities payable in shares of Common Stock (which, for avoidance of doubt, shall not include any shares of Common Stock issued by the Company upon exercise of this Warrant), (ii) subdivides outstanding shares of Common Stock into a larger number of shares, (iii) combines (including by way of reverse stock split) outstanding shares of Common Stock into a smaller number of shares, or (iv) issues by reclassification of shares of Common Stock any shares of capital stock of the Company, then in each case the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event, and the number of Shares issuable upon exercise of this Warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged. Any adjustment made pursuant to this Section 3.1 shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.

3.2. **Subsequent Rights Offerings**. In addition to any adjustments pursuant to Section 3.1 above, if at any time the Company grants, issues or sells any Common Stock Equivalents or rights to purchase stock, warrants, securities or other property pro rata to all (or substantially all) of the record holders of any class of shares of Common Stock (the "**Purchase Rights**"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights (provided, however, that, to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such shares of Common Stock as a result of such Purchase Right to such extent) and such Purchase Right to such extent shall be held in abeyance for the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

3.3. **Pro Rata Distributions**. During such time as this Warrant is outstanding, if the Company shall declare or make any dividend or other distribution of its assets (or rights to acquire its assets) to all (or substantially all) holders of shares of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a "**Distribution**"), at any time after the issuance of this Warrant, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date of which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the participation in such Distribution (provided, however, that, to the extent that the Holder's right to participate in any such Distribution would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Distribution to such extent (or in the beneficial ownership of any shares of Common Stock as a result of such Distribution to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation). To the extent that this Warrant has not been partially or completely exercised at the time of such Distribution, such portion of the Distribution shall be held in abeyance for the benefit of the Holder until the Holder has exercised this Warrant.

3.4. **Fundamental Transaction**. If, at any time while this Warrant is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person, (ii) the Company or any Subsidiary, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding Common Stock or 50% or more of the voting power of the common equity of the Company, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the Common Stock is effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off, merger or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires 50% or more of the outstanding shares of Common Stock or 50% or more of the voting power of the common equity of the Company (each a "**Fundamental Transaction**"), then, upon any subsequent exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction, at the option of the Holder (without regard to any limitation in Section 2.6 on the exercise of this Warrant), the number of shares of Common Stock of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration (the "**Alternate Consideration**") receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common Stock for which this Warrant is exercisable immediately prior to such Fundamental

Transaction (without regard to any limitation in Section 2.6 on the exercise of this Warrant). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the "**Successor Entity**") to assume in writing all of the obligations of the Company under this Warrant in accordance with the provisions of this Section 3.4 pursuant to written agreements in form and substance reasonably satisfactory to the Holder and approved by the Holder (without unreasonable delay) prior to such Fundamental Transaction and shall, at the option of the Holder, deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant that is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the shares of Common Stock acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock prior to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall be added to the term "Company" under this Warrant (so that from and after the occurrence or consummation of such Fundamental Transaction, each and every provision of this Warrant referring to the "Company" shall refer instead to each of the Company and the Successor Entity or Successor Entities, jointly and severally), and the Successor Entity or Successor Entities, jointly and severally with the Company, may exercise every right and power of the Company prior thereto and the Successor Entity or Successor Entities shall assume all of the obligations of the Company prior thereto under this Warrant with the same effect as if the Company and such Successor Entity or Successor Entities, jointly and severally, had been named as the Company herein. For the avoidance of doubt, the Holder shall be entitled to the benefits of the provisions of this Section 3.4 regardless of (i) whether the Company has sufficient authorized shares of Common Stock for the issuance of Warrant Shares and/or (ii) whether a Fundamental Transaction occurs prior to the Initial Exercise Date.

3.5. **Calculations**. All calculations under this Section 3 shall be made to the nearest fraction of a cent as in the initial Exercise Price or the nearest 1/100th of a share, as the case may be. For purposes of this Section 3, the number of shares of Common Stock deemed to be issued and outstanding as of a given date shall be the sum of the number of shares of Common Stock (excluding treasury shares, if any) issued and outstanding.

3.6. **Notice to Holder**.

3.6.1. **Adjustment to Exercise Price**. Whenever the Exercise Price is adjusted pursuant to any provision of this Section 3, the Company shall promptly deliver to the Holder by email a notice setting forth the Exercise Price after such adjustment and any resulting adjustment to the number of Warrant Shares and setting forth a brief statement of the facts requiring such adjustment.

3.6.2. **Notice to Allow Exercise by Holder**. If (A) the Company shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) the Company shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) the Company shall authorize the granting to all holders of the Common Stock rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Company shall be required in connection with any reclassification of the Common Stock, any consolidation or merger to which the Company (or any of its Subsidiaries) is a party, any sale or transfer of all or substantially all of its assets, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property, or (E) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, then, in each case, the Company shall cause to be delivered by email to the Holder at its last email address as it shall appear upon the Warrant Register of the Company, at least twenty (20) Calendar Days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares of Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange; provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided in this Warrant constitutes, or contains, material, non-public information regarding the Company or any of the Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to exercise this Warrant during the period commencing on the date of such notice to the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

4. **Transfer of Warrant**.

4.1. **Transferability**. This Warrant and all rights hereunder (including, without limitation, any registration rights) are transferable, in whole or in part, upon surrender of this Warrant at the principal office of the Company or its designated agent, together with a written assignment of this Warrant substantially in the form attached hereto as Exhibit 2.5.6 duly executed by the Holder or its agent or attorney and funds sufficient to pay any transfer taxes payable upon the making of such transfer. Upon such surrender and, if required, such payment, the Company shall execute and deliver a new Warrant or Warrants in the name of the assignee or assignees, as applicable, and in the denomination or denominations specified in such instrument of assignment, and shall issue to the assignor a new Warrant evidencing the portion of this Warrant not so assigned, and this Warrant shall promptly be cancelled. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company unless the Holder has assigned this Warrant in full, in which case, the Holder shall surrender this Warrant to the Company within three (3) Trading Days after the date on which the Holder delivers an assignment form to the Company assigning this Warrant in full. The Warrant, if properly assigned in accordance herewith, may be exercised by a new holder for the purchase of Warrant Shares without having a new Warrant issued.

4.2. **New Warrants**. If this Warrant is not held in global form through DTC (or any successor depositary), this Warrant may be divided or combined with other Warrants upon presentation hereof at the aforesaid office of the Company, together with a written notice specifying the names and denominations in which new Warrants are to be issued, signed by the Holder or its agent or attorney. Subject to compliance with Section 4.1, as to any transfer which may be involved in such division or combination, the Company shall execute and deliver a new Warrant or Warrants in exchange for the Warrant or Warrants to be divided or combined in accordance with such notice. All Warrants issued on transfers or exchanges shall be dated the initial Issuance Date of this Warrant and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

4.3. **Warrant Register**. The Company shall register this Warrant, upon its records (the "**Warrant Register**"), in the name of the record Holder hereof from time to time. The Company may deem and treat the registered Holder of this Warrant as the absolute owner hereof for the purpose of any exercise hereof or any distribution to the Holder, and for all other purposes, absent actual notice to the contrary.

5. **Miscellaneous**.

5.1. **No Rights as Stockholder until Exercise; No Settlement in Cash** This Warrant does not entitle the Holder to any voting rights, dividends or other rights as a

stockholder of the Company prior to the exercise hereof as set forth in Section 2.5.1, except as expressly set forth in Section 3. Without limiting any rights of a Holder to receive Warrant Shares on a "cashless exercise" pursuant to Section 2.3 or to receive cash payments pursuant to Section 2.5.1 and Section 2.5.4 herein, in no event shall the Company be required to net cash settle an exercise of this Warrant.

5.2. **Loss, Theft, Destruction or Mutilation of Warrant**. The Company covenants that upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant or any stock certificate relating to the Warrant Shares, and in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it (which, in the case of the Warrant, shall not include the posting of any bond), and upon surrender and cancellation of such Warrant or stock certificate, if mutilated, the Company will make and deliver a new Warrant or stock certificate of like tenor and dated as of such cancellation, in lieu of such Warrant or stock certificate.

5.3. **Saturdays, Sundays, Holidays, etc**. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Trading Day, then such action may be taken, or such right may be exercised, on the next succeeding Trading Day.

5.4. **Authorized Shares**.

5.4.1. **Reservation of Authorized and Unissued Shares**. The Company covenants that, while the Warrant is outstanding, it will reserve from its authorized and unissued Common Stock a sufficient number of shares of Common Stock to provide for the issuance of the Warrant Shares upon the exercise of any purchase rights under this Warrant. The Company further covenants that its issuance of this Warrant shall constitute full authority to its officers who are charged with the duty of issuing the necessary Warrant Shares upon the exercise of the purchase rights under this Warrant. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation, or of any requirements of the Trading Market upon which the Common Stock may be listed. The Company covenants that all Warrant Shares which may be issued upon the exercise of the purchase rights represented by this Warrant will, upon exercise of the purchase rights represented by this Warrant and payment for such Warrant Shares in accordance herewith, be duly authorized, validly issued, fully paid and nonassessable (which means that no further sums are required to be paid by the holders thereof in connection with the issue thereof) and free from all taxes, liens and charges created by the Company in respect of the issue thereof (other than taxes in respect of any transfer occurring contemporaneously with such issue). If the Company does not have a sufficient number of authorized and unissued shares of Common Stock available to honor the exercise of Warrants, the Company shall allocate the available number of Warrant Shares on a pro rata basis among all Holders exercising Warrants, until such time as the Company has a sufficient number of authorized Common Stock to issue all Warrant Shares in full.

5.4.2. **Noncircumvention**. Except and to the extent as waived or consented to by the Holder, the Company shall not by any action, including, without limitation, amending its certificate of incorporation or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate to protect the rights of Holder as set forth in this Warrant against impairment. Without limiting the generality of the foregoing, the Company will (i) not increase the par value of any Warrant Shares above the amount payable therefor upon such exercise immediately prior to such increase in par value, (ii) take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable Warrant Shares upon the exercise of this Warrant and (iii) use commercially reasonable efforts to obtain all such authorizations, exemptions or consents from any public regulatory body having jurisdiction thereof, as may be, necessary to enable the Company to perform its obligations under this Warrant.

5.4.3. **Authorizations, Exemptions and Consents**. Before taking any action that would result in an adjustment in the number of Warrant Shares for which this Warrant is exercisable or in the Exercise Price, the Company shall obtain all such authorizations or exemptions thereof, or consents thereto, as may be necessary from any public regulatory body or bodies having jurisdiction thereof.

5.5. **Governing Law**. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be governed by and construed and enforced in accordance with the internal laws of the State of New York, without regard to the principles of conflicts of law thereof. Each party agrees that all legal proceedings concerning the interpretations, enforcement and defense of the transactions contemplated by this Warrant (whether brought against a party hereto or their respective affiliates, directors, officers, stockholders, partners, members, employees or agents) shall be commenced exclusively in the state and federal courts sitting in the City of New York. Each party hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in the City of New York, Borough of Manhattan for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is improper or is an inconvenient venue for such proceeding. Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Warrant and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by law. If either party shall commence an action, suit or proceeding to enforce any provisions of this Warrant, the prevailing party in such action, suit or proceeding shall be reimbursed by the other party for their reasonable attorneys' fees and other costs and expenses incurred with the investigation, preparation and prosecution of such action or proceeding. Notwithstanding the foregoing, nothing in this paragraph shall limit or restrict the federal district court in which a Holder may bring a claim under the federal securities laws.

5.6. **Restrictions**. The Holder acknowledges that the Warrant Shares acquired upon the exercise of this Warrant, if not registered, and the Holder does not utilize cashless exercise, will have restrictions upon resale imposed by state and federal securities laws.

5.7. **Nonwaiver and Expenses**. No course of dealing or any delay or failure to exercise any right hereunder on the part of Holder shall operate as a waiver of such right or otherwise prejudice the Holder's rights, powers or remedies. No provision of this Warrant shall be construed as a waiver by the Holder of any rights which the Holder may have under the federal securities laws and the rules and regulations of the Commission thereunder. Without limiting any other provision of this Warrant, if the Company willfully and knowingly fails to comply with any provision of this Warrant, which results in any material damages to the Holder, the Company shall pay to the Holder such amounts as shall be sufficient to cover any costs and expenses including, but not limited to, reasonable attorneys' fees, including those of appellate proceedings, incurred by the Holder in collecting any amounts due pursuant hereto or in otherwise enforcing any of its rights, powers or remedies hereunder.

5.8. **Notices**. Any and all notices or other communications or deliveries to be provided by the Holders hereunder including, without limitation, any Notice of Exercise, shall be in writing and delivered personally, by e-mail, or sent by a nationally recognized overnight courier service, addressed to the Company, at 680 East Colorado Boulevard, Suite 180, Pasadena, CA 91101, Attention: Geordan Pursglove, Chief Executive Officer, email address: g.pursglove@2gpgroup.com, or such other email address or address as the Company may specify for such purposes by notice to the Holders. Any and all notices or other communications or deliveries to be provided by the Company hereunder shall be in writing and delivered personally, by e-mail, or sent by a nationally recognized overnight courier service addressed to each Holder at the e-mail address or address of such Holder appearing on the books of the Company. Any notice or other communication or deliveries hereunder shall be deemed given and effective on the earliest of (i) the time of transmission, if such notice or communication is delivered via e-mail at the e-mail address set forth in this Section 5.8 prior

to 5:30 p.m. (New York City time) on any date, (ii) the next Trading Day after the time of transmission, if such notice or communication is delivered via e-mail at the e-mail address set forth in this Section 5.8 on a Calendar Day that is not a Trading Day or later than 5:30 p.m. (New York City time) on any Trading Day, (iii) the second Trading Day following the date of mailing, if sent by U.S. nationally recognized overnight courier service, or (iv) upon actual receipt by the party to whom such notice is required to be given. To the extent that any notice provided hereunder constitutes, or contains, material, non-public information regarding the Company or any Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K.

5.9. **Limitation of Liability**. No provision hereof, in the absence of any affirmative action by the Holder to exercise this Warrant to purchase Warrant Shares, and no enumeration herein of the rights or privileges of the Holder, shall give rise to any liability of the Holder for the purchase price of any Common Stock or as a stockholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.

5.10. **Remedies**. The Holder, in addition to being entitled to exercise all rights granted by law, including recovery of damages, will be entitled to specific performance of its rights under this Warrant. The Company agrees that monetary damages would not be adequate compensation for any loss incurred by reason of a breach by it of the provisions of this Warrant and hereby agrees to waive and not to assert the defense in any action for specific performance that a remedy at law would be adequate.

5.11. **Successors and Assigns**. Subject to applicable securities laws, this Warrant and the rights and obligations evidenced hereby shall inure to the benefit of and be binding upon the successors and permitted assigns of the Company and the successors and permitted assigns of Holder. The provisions of this Warrant are intended to be for the benefit of any Holder from time to time of this Warrant and shall be enforceable by the Holder or holder of Warrant Shares.

5.12. **Amendment**. This Warrant may be modified or amended or the provisions hereof waived with the written consent of the Company, on the one hand, and a majority-in-interest of Holders of the Warrants, on the other hand.

5.13. **Severability**. Wherever possible, each provision of this Warrant shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Warrant shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions or the remaining provisions of this Warrant.

5.14. **Headings**. The headings used in this Warrant are for the convenience of reference only and shall not, for any purpose, be deemed a part of this Warrant.

****

[LIXT Investor Registered Pre-Funded Warrant Signature Page Follows]

[LIXT Investor Registered Pre-Funded Warrant Signature Page]

IN WITNESS WHEREOF, the Company has caused this Registered Pre-Funded Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

LIXTE BIOTECHNOLOGY HOLDINGS, INC.

By: _____
Name: Geordan Pursglove
Its: Chief Executive Officer

Exhibit 2.1

NOTICE OF EXERCISE

TO: LIXTE BIOTECHNOLOGY HOLDINGS, INC.

(1) The undersigned hereby elects to purchase _____ Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

[ ] in lawful money of the United States.

[ ] if permitted the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in Section 2.3, to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in Section 2.3.

(3) Please issue said Warrant Shares in the name of the undersigned or in such other name as is specified below:

_____

The Warrant Shares shall be delivered to the following DWAC Account Number:

_____

_____

_____

[LIXT Investor Registered Pre-Funded Warrant Exercise Notice – Investor Signature Page]

Name of Investing Entity: _____
Signature of Authorized Signatory of Investing Entity: _____
Name of Authorized Signatory: _____
Title of Authorized Signatory: _____
Date: _____

Exhibit 2.5.6

ASSIGNMENT FORM

(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to exercise the Warrant to purchase shares of Common Stock.)

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name: _____
Address: _____
Phone Number: _____
Email Address: _____
Date: _____
Holder's Signature: _____
Holder's Address: _____

Exhibit 10.27

LIXTE BIOTECHNOLOGY HOLDINGS, INC. - LOCK-UP AGREEMENT

[●], 2025

Spartan Capital Securities, LLC
45 Broadway, 19th Floor New York, NY 10006

Ladies and Gentlemen:

The undersigned understands that Spartan Capital Securities, LLC (the "**Underwriter**") proposes to enter into an Underwriting Agreement (the "**Underwriting Agreement**") with Lixte Biotechnology Holdings, Inc., a Delaware corporation (the "**Company**"), providing for the public offering (the "**Public Offering**") of shares of Common Stock, $0.0001 par value per share ("**Common Stock**"). Capitalized terms not otherwise defined herein shall have the meaning set forth in the Underwriting Agreement.

To induce the Underwriter to continue its efforts in connection with the Public Offering, the undersigned hereby irrevocably agrees that, without the prior written consent of the Underwriter, the undersigned will not, during the period commencing on the date hereof and ending sixty (60) days after the Closing Date (as defined in the Underwriting Agreement) (the "**Lock-Up Period**"), (1) offer, pledge, sell, contract to sell, grant, lend, or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable for shares of Common Stock, whether now owned or hereafter acquired by the undersigned (or any Affiliate of the undersigned) or with respect to which the undersigned (or any Affiliate of the undersigned) has or hereafter acquires the power of disposition (collectively, the "**Lock-Up Securities**"); (2) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of the Lock-Up Securities, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of Lock-Up Securities, in cash or otherwise; (3) make any demand for or exercise any right with respect to the registration of any Lock-Up Securities; or (4) publicly disclose the intention to make any offer, sale, pledge or disposition, or to enter into any transaction, swap, hedge or other arrangement relating to any Lock-Up Securities.

Notwithstanding the foregoing, and subject to the conditions below, the undersigned may transfer Lock-Up Securities without the prior written consent of the Underwriter in connection with any of the following:

1. transactions relating to Lock-Up Securities acquired in open market transactions after the completion of the Public Offering; provided that no filing under Section 16(a) of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), shall be required or shall be voluntarily made in connection with subsequent sales of Lock-Up Securities acquired in such open market transactions.

2. transfers of Lock-Up Securities as a *bona fide* gift, by will or intestacy or to a family member or trust for the benefit of a family member (for purposes of this lock-up agreement, "family member" means any relationship by blood, marriage or adoption, not more remote than first cousin), provided that the transferee agrees to sign and deliver a lock-up agreement substantially in the form of this lock-up agreement for the balance of the Lock-Up Period.

3. transfers of Lock-Up Securities to a charity or educational institution.

4. if the undersigned, directly or indirectly, controls a corporation, partnership, limited liability company or other business entity, any transfers of Lock-Up Securities to any stockholder, partner or member of, or owner of similar equity interests in, the undersigned, as the case may be; provided that in the case of any transfer pursuant to the foregoing clauses (b), (c) or (d),

   4.1. any such transfer shall not involve a disposition for value,

   4.2. each transferee shall sign and deliver to the Underwriter a lock-up agreement substantially in the form of this lock-up agreement and

   4.3. no filing under Section 16(a) of the Exchange Act shall be required or shall be voluntarily made. The undersigned also agrees and consents to the entry of stop transfer instructions with the Company's transfer agent and registrar against the transfer of the undersigned's Lock-Up Securities except in compliance with this lock-up agreement.

5. the receipt by the undersigned from the Company of Common Stock upon the vesting of restricted stock awards or units or upon the exercise of options to purchase the shares of Common Stock issued under an equity incentive plan of the Company or an employment arrangement (the "**Plan Shares**") or the transfer or withholding of Common Stock or any securities convertible into Common Stock to the Company upon a vesting event of the Company's securities or upon the exercise of options to purchase the Company's securities, in each case on a "cashless" or "net exercise" basis or to cover tax obligations of the undersigned in connection with such vesting or exercise provided that if the undersigned is required to file a report under Section 13 or Section 16 of the Exchange Act reporting a reduction in beneficial ownership of Common Stock during the Lock-Up Period, the undersigned shall include a statement in such schedule or report to the effect that the purpose of such transfer was to cover tax withholding obligations of the undersigned in connection with such vesting or exercise and, provided further that the Plan Shares shall be subject to the terms of this lock-up agreement.

6. the establishment of a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of Lock-Up Securities provided that (i) such plan does not provide for the transfer of Lock-Up Securities during the Lock-Up Period and (ii) no filing under Section 13 or Section 16 of the Exchange Act or any other public announcement shall be required or voluntarily made during the Lock-Up Period..

7. the transfer of Lock-Up Securities that occurs by operation of law, such as pursuant to a qualified domestic order or in connection with a divorce settlement, provided that the transferee agrees to sign and deliver a lock-up agreement substantially in the form of this lock-up agreement for the balance of the Lock-Up Period, and provided further that any filing under Section 13 or Section 16 of the Exchange Act that is required to be made during the Lock-Up Period as a result of such transfer shall include a statement that such transfer has occurred by operation of law; and provided further that competent legal counsel for the Company shall have first advised that such transfer is a mandatory and not voluntary transfer.

8. the transfer of Lock-Up Securities pursuant to a bona fide third party tender offer, merger, consolidation or other similar transaction made to all holders of the Common Stock involving a change of control (as defined below) of the Company after the closing of the Transaction and approved by the Company's board of directors; provided that in the event that the tender offer, merger, consolidation or other such transaction is not completed, the Lock-Up Securities owned by the undersigned shall remain subject to the restrictions contained in this lock-up agreement. For purposes of clause (i) above, "change of control" shall mean the consummation of any bona fide third party tender offer, merger, amalgamation, consolidation or other similar transaction the result of which is that any "person" (as defined in Section 13(d)(3) of the Exchange Act), or group of persons, becomes the beneficial owner (as defined in Rules 13d-3 and 13d-5 of the Exchange Act) of a majority of total voting power of the voting stock of the Company. The undersigned also agrees and consents to the entry of stop transfer instructions with the Company's transfer agent and registrar against the transfer of the undersigned's Lock-Up Securities except in compliance with this lock-up agreement.

If the undersigned is an officer or director of the Company, (i) the undersigned agrees that the foregoing restrictions shall be equally applicable to any Common Stock that the undersigned may purchase in the Public Offering; (ii) the Underwriter agrees that, at least three (3) Business Days before the effective date of any release or waiver of the foregoing restrictions in connection with a transfer of Lock-Up Securities, the Underwriter will notify the Company of the impending release or waiver; and (iii) the Company has agreed in the Underwriting Agreement to announce the impending release or waiver by press release through a major news service at least two (2) Business Days before the effective date of the release or waiver. Any release or waiver granted by the Underwriter hereunder to any such officer or director shall only be effective two (2) Business Days after the publication date of such press release. The provisions of this paragraph will not apply if (a) the release or waiver is affected solely to permit a transfer of Lock-Up Securities not for consideration and (b) the transferee has agreed in writing to be bound by the same terms described in this lock-up agreement to the extent and for the duration that such terms remain in effect at the time of such transfer.

No provision in this lock-up agreement shall be deemed to restrict or prohibit (i) the adoption of an equity incentive plan and the grant of options and/or restricted stock grants thereunder, and the filing of a registration statement on Form S-8; *provided*, however, that any sales by the undersigned shall be subject to the terms of this lock-up agreement, (ii) the issuance of Common Stock in connection with an acquisition or a strategic relationship which may include the sale of equity securities; and (iii) the exercise, exchange or conversion by the undersigned of any securities exercisable or exchangeable for or convertible into Common Stock, as applicable; *provided that* none of such Common Stock shall be saleable in the public market until the expiration of the Lock-Up Period.

The undersigned understands that the Company and the Underwriter are relying upon this lock-up agreement in proceeding toward consummation of the Public Offering. The undersigned further understands that this lock-up agreement is irrevocable and shall be binding upon the undersigned's heirs, legal representatives, successors and assigns. This Letter Agreement is intended for the benefit of the parties hereto and their respective successors and permitted assigns and is not for the benefit of, nor may any provisions hereof be enforced by, any of other person or entity.

The undersigned understands that, if the Underwriting Agreement is not executed by [●], 2025[1], or if the Underwriting Agreement (other than the provisions thereof which survive termination) shall terminate or be terminated prior to payment for and delivery of the Shares to be sold thereunder, then this lock-up agreement shall be void and of no further force or effect.

Whether or not the Public Offering actually occurs depends on a number of factors, including market conditions. Any Public Offering will only be made pursuant to an Underwriting Agreement, the terms of which are subject to negotiation between the Company and the Underwriter.

[LIXT Lock-Up Agreement Signature Page Follows]

[1] Insert date that is 30 days after pricing.

[LIXT Lock-Up Agreement Signature Page]

The undersigned has read and agrees to be bound by the terms of this Lock-Up Agreement dated as of [●], 2025.

Very truly yours,

_____

(Signature)
Name:

Address: _____

_____

_____

Email: _____

THE REGISTERED HOLDER OF THIS PURCHASE WARRANT BY ITS ACCEPTANCE HEREOF, AGREES THAT IT WILL NOT SELL, TRANSFER OR ASSIGN THIS PURCHASE WARRANT EXCEPT AS HEREIN PROVIDED AND THE REGISTERED HOLDER OF THIS PURCHASE WARRANT AGREES THAT IT WILL NOT SELL, TRANSFER, ASSIGN, PLEDGE OR HYPOTHECATE THIS PURCHASE WARRANT FOR A PERIOD OF ONE HUNDRED EIGHTY (180) CALENDAR DAYS FOLLOWING [●], 2025 (THE "COMMENCEMENT DATE") TO ANYONE OTHER THAN (I) SPARTAN CAPITAL SECURITIES, LLC OR A SELECTED DEALER IN CONNECTION WITH THE OFFERING FOR WHICH THIS PURCHASE WARRANT WAS ISSUED TO THE UNDERWRITER AS CONSIDERATION (THE " OFFERING"), OR (II) A BONA FIDE OFFICER OR PARTNER OF SPARTAN CAPITAL SECURITIES, LLC.

THIS PURCHASE WARRANT IS NOT EXERCISABLE PRIOR TO [●], 2025[1]. VOID AFTER 5:00 P.M., EASTERN TIME, [●][2].

UNDERWRITER WARRANT TO PURCHASE COMMON STOCK

LIXTE BIOTECHNOLOGY HOLDINGS, INC.

Warrant Shares: [●]

Initial Exercise Date: [●], 2025[3][4]

Issue Date: [●], 2025

THIS WARRANT TO PURCHASE COMMON STOCK (the "**Warrant**") certifies that, in consideration of funds duly paid by or on behalf of Spartan Capital Securities, LLC ("**Holder**"), as registered owner of this Purchase Warrant, to Lixte Biotechnology Holdings, Inc., a Delaware corporation (the "**Company**"), Holder is entitled, at any time or from time to time beginning [●][5] (the "**Commencement Date**"), and at or before 5:00 p.m., Eastern time, on [●], 2025 (the "**Expiration Date**"), but not thereafter, to subscribe for, purchase and receive, in whole or in part, up to [●] shares of Common Stock, $0.0001 par value per share (the "**Shares**"), subject to adjustment as provided in Section 5 hereof. If the Expiration Date is not a Trading Day, then this Purchase Warrant may be exercised on the next succeeding Trading Day. During the period beginning on [●], 2025 and ending on the Expiration Date, the Company agrees not to take any action that would terminate this Purchase Warrant. This Purchase Warrant is initially exercisable at $[●] per Share; provided, however, that upon the occurrence of any of the events specified in Section 5 hereof, the rights granted by this Purchase Warrant, including the exercise price per and the number of Shares to be received upon such exercise, shall be adjusted as therein specified. The term "**Exercise Price**" shall mean the initial exercise price or the adjusted exercise price, depending on the context, and the term "**Business Day**" means a Calendar Day other than a Saturday, Sunday or any other Calendar Day which is a federal legal holiday in the United States or any Calendar Day on which the commercial banks in the City of New York are required by law or other governmental action to close, provided that the commercial banks in the City of New York shall not be deemed to be required to be closed due to a "stay at home," "shelter in place," "non-essential employee" or similar orders or restrictions or the closure of any physical branch locations at the direction of any governmental authority so long as the electronic funds transfer systems (including for wire transfers) of commercial banks in the City of New York generally are open for use by customers on such Calendar Day. "**Calendar Day**" means each and every day of the week (Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday). "**Trading Day**" means a Calendar Day on which the principal trading market for the Company's Common Stock is open for trading.

[1] Insert date that is 180 Calendar Days after pricing/commencement of sales.

[2] Insert date that is 60 months after pricing.

[3] Insert date that is 180 Calendar Days after pricing/commencement of sales.

[4] If this date is not a Trading Day, then insert the immediately following Trading Day.

[5] Insert date that is 180 Calendar Days after pricing/commencement of sales.

1. **Exercise**.

1.1. **Exercise Form**. In order to exercise this Purchase Warrant, the exercise form attached hereto must be duly executed and completed and delivered to the Company, together with this Purchase Warrant and, subject to Section 1.2, payment of the Exercise Price for the Shares being purchased payable in cash by wire transfer of immediately available funds to an account designated by the Company or by certified check or official bank check. If the subscription rights represented hereby shall not be exercised at or before 5:00 p.m., Eastern time, on the Expiration Date, this Purchase Warrant shall become and be void without further force or effect, and all rights represented hereby shall cease and expire. Each exercise hereof shall be irrevocable.

1.2. **Cashless Exercise**. In lieu of exercising this Purchase Warrant by payment of cash or check payable to the order of the Company pursuant to Section 1.1 above, Holder may elect to receive the number of Shares equal to the value of this Purchase Warrant (or the portion thereof being exercised), by surrender of this Purchase Warrant to the Company, together with the exercise form attached hereto, in which event the Company will issue to Holder Shares in accordance with the following formula:

$$X = \frac{Y(A-B)}{A}$$

Where,

X = The number of Shares to be issued to Holder;
Y = The number of Shares for which the Purchase Warrant is being exercised;
A = The fair market value of one Share; and
B = The Exercise Price.

For purposes of this Section 1.2, the fair market value of a Share is defined as follows:

1.2.1. if the Company's Common Stock is traded on a national securities exchange, the OTCQB or OTCQX, the fair market value shall be deemed to be the closing price on such exchange, the OTCQB or OTCQX, as the case may be, on the Trading Day immediately preceding the date that the exercise form is delivered pursuant to Section 7.4 in connection with the exercise of the Purchase Warrant; or

1.2.2. if the Company's Common Stock is not then traded on a national securities exchange, the OTCQB or OTCQX and if prices for the Company's Common Stock is then reported on the "Pink Sheets" published by OTC Markets Group, Inc., the fair market value shall be deemed to be the closing bid prior to the exercise form being submitted in connection with the exercise of the Purchase Warrant so reported; provided, however, if there is no active public market, the value shall be the fair market value thereof, as determined in good faith by the Company's Board of Directors.

1.3. **Legend**. Each certificate for the securities purchased under this Purchase Warrant shall bear a legend as follows unless such securities have been registered under the Securities Act of 1933, as amended (the "**Act**"):

> **The securities represented by this certificate have not been registered under the Securities Act of 1933, as amended (the "Act"), or applicable state law. Neither the securities nor any interest therein may be offered for sale, sold or otherwise transferred except pursuant to an effective registration statement under the Act, or pursuant to an exemption from registration under the Act and applicable state law which, in the opinion of counsel to Lixte Biotechnology Holdings, Inc., is available.**

1.4. **Resale of Shares**. Holder and the Company acknowledge that as of the date hereof the Staff of the Division of Corporation Finance of the SEC has published Compliance & Disclosure Interpretation 528.04 in the Securities Act Rules section thereof, stating that the holder of securities issued in connection with a public offering may not rely upon Rule 144 promulgated under the Act to establish an exemption from registration requirements under Section 4(a)(1) under the Act, but may nonetheless apply Rule 144 constructively for the resale of such Shares in the following manner: (a) provided that six months has elapsed since the last sale under the registration statement, an underwriter or finder may resell the securities in accordance with the provisions of Rule 144(c), (e), and (f), except for the notice requirement; (b) a purchaser of the Shares from an underwriter receives restricted securities unless the sale is made with an appropriate, current prospectus, or unless the sale is made pursuant to the conditions contained in (a) above; (c) a purchaser of the Shares from an underwriter who receives restricted securities may include the underwriter's holding period, provided that the underwriter or finder is not an affiliate of the issuer; and (d) if an underwriter transfers the Shares to its employees, the employees may tack the firm's holding period for purposes of Rule 144(d), but they must aggregate sales of the distributed Shares with those of other employees, as well as those of the underwriter or finder, for a six-month period from the date of the transfer to the employees. Holder and the Company also acknowledge that the Staff of the Division of Corporation Finance of the SEC has advised in various no-action letters that the holding period associated with securities issued without registration to a service provider commences upon the completion of the services, which the Company agrees and acknowledges shall be the final closing of the Offering, and that Rule 144(d)(3)(ii) provides that securities acquired from the issuer solely in exchange for other securities of the same issuer shall be deemed to have been acquired at the same time as the securities surrendered for conversion (which the Company agrees is the date of the initial issuance of this Purchase Warrant). In the event that following a reasonably-timed written request by Holder to transfer the Shares in accordance with Compliance & Disclosure Interpretation 528.04 counsel for the Company in good faith concludes that Compliance & Disclosure Interpretation 528.04 no longer may be relied upon as a result of changes in applicable laws, regulations, or interpretations of the SEC Division of Corporation Finance, or as a result of judicial interpretations not known by the Company or its counsel on the date hereof (either, a "**Registration Trigger Event**"), then the Company shall promptly, and in any event within five (5) Calendar Days following the request, provide written notice to Holder of such determination. As a condition to giving such notice, the parties shall negotiate in good faith a single demand registration right pursuant to an agreement in customary form reasonably acceptable to the parties; provided that notwithstanding anything to the contrary, the obligations of the Company pursuant to this Section 1 shall terminate on the fifth anniversary of the commencement of sales of the public offering. In the absence of such conclusion by counsel for the Company, the Company shall, upon such a request of Holder given no earlier than six months after the final closing of the Offering, instruct its transfer agent to permit the transfer of such Shares in accordance with Compliance & Disclosure Interpretation 528.04, provided that Holder has provided such documentation as shall be reasonably be requested by the Company to establish compliance with the conditions of Compliance & Disclosure Interpretation 528.04. Notwithstanding anything to the contrary, pursuant to FINRA Rule 5110(g)(8)(A), the Holder shall not be entitled to more than one demand registration right hereunder and the duration of the registration rights hereunder shall not exceed five years from the commencement of sales of the public offering.

2. **Transfer**.

2.1. **General Restrictions**. The registered Holder of this Purchase Warrant agrees by such Holder's acceptance hereof, that such Holder will not: (a) sell, transfer, assign, pledge or hypothecate this Purchase Warrant for a period of one hundred eighty (180) Calendar Days following the Commencement Date to anyone other than: (i) Holder or an underwriter, placement agent, or a selected dealer participating in the Offering, or (ii) a bona fide officer or partner of Holder or of any such underwriter, placement agent or selected dealer, in each case in accordance with FINRA Conduct Rule 5110(g)(1), or (b) for a period of one hundred eighty (180) Calendar Days following the Commencement Date cause this Purchase Warrant or the securities issuable hereunder to be the subject of any hedging, short sale, derivative, put or call transaction that would result in the effective economic disposition of this Purchase Warrant or the securities hereunder, except as provided for in FINRA Rule 5110(g)(2). After 180 Calendar Days after the Commencement Date, transfers to others may be made subject to compliance with or exemptions from applicable securities laws. In order to make any permitted assignment, the Holder must deliver to the Company the assignment form attached hereto duly executed and completed, together with the Purchase Warrant and payment of all transfer taxes, if any, payable in connection therewith. The Company shall within five (5) Calendar Days transfer this Purchase Warrant on the books of the Company and shall execute and deliver a new Purchase Warrant or Purchase Warrants of like tenor to the appropriate assignee(s) expressly evidencing the right to purchase the aggregate number of Shares purchasable hereunder or such portion of such number as shall be contemplated by any such assignment.

2.2. **Restrictions Imposed by the Act**. The securities evidenced by this Purchase Warrant shall not be transferred unless and until: (i) if required by applicable law, the Company has received the opinion of counsel for the Company that the securities may be transferred pursuant to an exemption from registration under the Act and applicable state securities laws, or (ii) a registration statement or a post-effective amendment to the Registration Statement relating to the offer and sale of such securities has been filed by the Company and declared effective by the U.S. Securities and Exchange Commission (the "**Commission**") and compliance with applicable state securities law has been established.

3. **Piggyback Registration Rights**.

3.1. **Grant of Right**. In the event that there is not an effective registration statement covering the Purchase Warrant or the underlying Shares, whenever the Company proposes to register any of its Common Stock under the Act (other than (i) a registration effected solely to implement an employee benefit plan or a transaction to which Rule 145 of the Act is applicable, or (ii) a registration statement on Form S-4, S-8 or any successor form thereto or another form not available for registering the Shares issuable upon exercise of this Purchase Warrant for sale to the public, whether for its own account or for the account of one or more stockholders of the Company (a "**Piggyback Registration**"), the Company shall give prompt written notice (in any event no later than ten (10) Business Days prior to the filing of such registration statement) to the Holder of the Company's intention to effect such a registration and, subject to the remaining provisions of this Section 3.1, shall include in such registration such number of Shares underlying this Purchase Warrant (the "**Registrable Securities**") that the Holders have (within ten (10) Business Days of the respective Holder's receipt of such notice) requested in writing (including such number) to be included within such registration. If a Piggyback Registration is an underwritten offering and the managing underwriter advises the Company that it has determined in good faith that marketing factors require a limit on the number of shares of Common Stock to be included in such registration, including all Shares issuable upon exercise of this Purchase Warrant (if the Holder has elected to include such Shares in such Piggyback Registration) and all other shares of Common Stock proposed to be included in such underwritten offering, the Company shall include in such registration (i) first, the number of shares of Common Stock that the Company proposes to issue and sell pursuant to such underwritten offering and (ii) second, the number of shares of Common Stock, if any, requested to be included therein by selling stockholders (including the Holder) allocated pro rata among all such persons on the basis of the number of shares of Common Stock then owned by each such person. If any Piggyback Registration is initiated as a primary underwritten offering on behalf of the Company, the Company shall select the investment banking firm or firms to act as the managing underwriter or underwriters in connection with such offering. Notwithstanding anything to the contrary, the obligations of the Company pursuant to this Section 3.1 shall terminate on the earlier of (i) the fifth anniversary of the Commencement Date and (ii) the date that Rule 144 would allow the Holder to sell its Registrable Securities during any ninety (90) Calendar Day period. The duration of the piggyback registration right shall not exceed seven years from the commencement of sales of the public offering.

3.2. **Indemnification**. The Company shall indemnify the Holder(s) of the Registrable Securities to be sold pursuant to any registration statement hereunder and each person, if any, who controls such Holders within the meaning of Section 15 of the Act or Section 20(a) of the Securities Exchange Act of 1934, as amended (" **Exchange Act**"), against all loss, claim, damage, expense or liability (including all reasonable attorneys' fees and other out-of-pocket expenses reasonably incurred in investigating, preparing or defending against any claim whatsoever) to which any of them may become subject under the Act, the Exchange Act or otherwise, arising from such registration statement but only to the same extent and with the same effect as the provisions pursuant to which the Company has agreed to indemnify Holder contained in the Underwriting Agreement between Holder and the Company, dated as of [●], 2025. The Holder(s) of the Registrable Securities to be sold pursuant to such registration statement, and their successors and assigns, shall severally, and not jointly, indemnify the Company, against all loss, claim, damage, expense or liability (including all reasonable attorneys' fees and other expenses reasonably incurred in investigating, preparing or defending against any claim whatsoever) to which they may become subject under the Act, the Exchange Act or otherwise, arising from information furnished by or on behalf of such Holders, or their successors or assigns, in writing, for specific inclusion in such registration statement to the same extent and with the same effect as the provisions contained in the Underwriting Agreement pursuant to which Holder has agreed to indemnify the Company.

3.3. **Exercise of Purchase Warrants**. Nothing contained in this Purchase Warrant shall be construed as requiring the Holder(s) to exercise their Purchase Warrants prior to or after the initial filing of any registration statement or the effectiveness thereof.

3.4. **Documents Delivered to Holders**. The Company shall deliver promptly to each Holder participating in the offering requesting the correspondence and memoranda described below, copies of all correspondence between the Commission and the Company, its counsel or auditors and all memoranda relating to discussions with the Commission or its staff with respect to the registration statement and permit each Holder and underwriter to do such investigation, upon reasonable advance notice, with respect to information contained in or omitted from the registration statement as it deems reasonably necessary to comply with applicable securities laws or rules of FINRA. Such investigation shall include access to books, records and properties and opportunities to discuss the business of the Company with its officers and independent auditors, all to such reasonable extent and at such reasonable times, during normal business hours, as any such Holder shall reasonably request.

3.5. **Underwriting Agreement**. The Holders shall be parties to any underwriting agreement relating to a Piggyback Registration. Such Holders shall not be required to make any representations or warranties to or agreements with the Company or the underwriters except as they may relate to such Holders, their Shares and the amount and nature of their ownership thereof and their intended methods of distribution.

3.6. **Documents to be Delivered by Holder(s)**. Each of the Holder(s) participating in any of the foregoing offerings shall furnish to the Company a completed and executed questionnaire provided by the Company requesting information customarily sought of selling security holders.

3.7. **Damages**. Should the Company fail to comply with such provisions, the Holder(s) shall, in addition to any other legal or other relief available to the Holder(s), be entitled to obtain specific performance or other equitable (including injunctive) relief against the threatened breach of such provisions or the continuation of any such breach, without the necessity of proving actual damages and without the necessity of posting bond or other security.

4. **New Purchase Warrants to be Issued**.

4.1. **Partial Exercise or Transfer**. Subject to the restrictions in Section 2 hereof, this Purchase Warrant may be exercised or assigned in whole or in part. In the event of the exercise or assignment hereof in part only, upon surrender of this Purchase Warrant for cancellation, together with the duly executed exercise or assignment form and funds sufficient to pay any Exercise Price and/or transfer tax if exercised pursuant to Section 1.1 hereto, the Company shall cause to be delivered to the Holder without charge a new Purchase Warrant of like tenor to this Purchase Warrant in the name of the Holder evidencing the right of the Holder to purchase the number of Shares purchasable hereunder as to which this Purchase Warrant has not been exercised or assigned.

4.2. **Lost Certificate**. Upon receipt by the Company of evidence satisfactory to it of the loss, theft, destruction or mutilation of this Purchase Warrant and of reasonably satisfactory indemnification or the posting of a bond, determined in the sole discretion of the Company, the Company shall execute and deliver a new Purchase Warrant of like tenor and date. Any such new Purchase Warrant executed and delivered as a result of such loss, theft, mutilation or destruction shall constitute a substitute contractual obligation on the part of the Company.

5. **Adjustments**.

5.1. **Adjustments to Exercise Price and Number of Shares**. The Exercise Price and the number of Shares underlying the Purchase Warrant shall be subject to adjustment from time to time as hereinafter set forth:

5.1.1. **Share Dividends; Split Ups**. If, after the date hereof, and subject to the provisions of Section 5.1.3 below, the number of outstanding Shares is increased by a stock dividend payable in Shares or by a split up of Shares or other similar event, then, on the effective date thereof, the number of Shares purchasable hereunder shall be increased in proportion to such increase in outstanding Shares, and the Exercise Price shall be proportionately decreased.

5.1.2. **Aggregation of Shares**. If, after the date hereof, and subject to the provisions of Section 5.1.3 below, the number of outstanding Shares is decreased by a consolidation, combination or reclassification of Shares or other similar event, then, on the effective date thereof, the number of Shares purchasable hereunder shall be decreased in proportion to such decrease in outstanding Shares, and the Exercise Price shall be proportionately increased.

5.1.3. **Replacement of Shares upon Reorganization, Etc**. In case of any reclassification or reorganization of the outstanding Shares other than a change covered by Section 5.1.1 or 5.1.2 hereof or that solely affects the par value of such Shares, or in the case of any share reconstruction or amalgamation or consolidation or merger of the Company with or into another corporation (other than a consolidation or share reconstruction or amalgamation or merger in which the Company is the continuing company and that does not result in any reclassification or reorganization of the outstanding Shares), or in the case of any sale or conveyance to another corporation or entity of the property of the Company as an entirety or substantially as an entirety in connection with which the Company is dissolved, the Holder of this Purchase Warrant shall have the right thereafter (until the expiration of the right of exercise of this Purchase Warrant) to receive upon the exercise hereof, for the same aggregate Exercise Price payable hereunder immediately prior to such event, the kind and amount of shares or other securities or property (including cash) receivable upon such reclassification, reorganization, share reconstruction or amalgamation, or consolidation, or upon a dissolution following any such sale or transfer, by a Holder of the number of Shares of the Company obtainable upon exercise of this Purchase Warrant immediately prior to such event; and if any reclassification also results in a change in Shares covered by Section 5.1.1 or 5.1.2, then such adjustment shall be made pursuant to Sections 5.1.1, 5.1.2 and this Section 5.1.3. The provisions of this Section 5.1.3 shall similarly apply to successive reclassifications, reorganizations, share reconstructions or amalgamations, or consolidations, sales or other transfers.

5.1.4. **Changes in Form of Purchase Warrant**. This form of Purchase Warrant need not be changed because of any change pursuant to this Section 5.1, and Purchase Warrants issued after such change may state the same Exercise Price and the same number of Shares as are stated in the Purchase Warrants initially issued

pursuant to this Agreement. The acceptance by any Holder of the issuance of new Purchase Warrants reflecting a required or permissive change shall not be deemed to waive any rights to an adjustment occurring after the Commencement Date or the computation thereof.

5.2. **Substitute Purchase Warrant**. In case of any consolidation of the Company with, or share reconstruction or amalgamation or merger of the Company with or into, another corporation (other than a consolidation or share reconstruction or amalgamation or merger which does not result in any reclassification or change of the outstanding Shares), the corporation formed by such consolidation or share reconstruction or amalgamation shall execute and deliver to the Holder a supplemental Purchase Warrant providing that the holder of each Purchase Warrant then outstanding or to be outstanding shall have the right thereafter (until the stated expiration of such Purchase Warrant) to receive, upon exercise of such Purchase Warrant, the kind and amount of shares and other securities and property receivable upon such consolidation or share reconstruction or amalgamation, by a holder of the number of Shares of the Company for which such Purchase Warrant might have been exercised immediately prior to such consolidation, share reconstruction or amalgamation or merger, sale or transfer. Such supplemental Purchase Warrant shall provide for adjustments which shall be identical to the adjustments provided for in this Section 5. The above provision of this Section 5 shall similarly apply to successive consolidations or share reconstructions or amalgamations or mergers.

5.3. **Elimination of Fractional Interests**. The Company shall not be required to issue certificates representing fractions of Shares upon the exercise of the Purchase Warrant, nor shall it be required to issue scrip or pay cash in lieu of any fractional interests, it being the intent of the parties that all fractional interests shall be eliminated by rounding any fraction up or down, as the case may be, to the nearest whole number of Shares or other securities, properties or rights.

6. **Reservation**. The Company shall at all times reserve and keep available out of its authorized Shares, solely for the purpose of issuance upon exercise of the Purchase Warrants, such number of Shares or other securities, properties or rights as shall be issuable upon the exercise thereof. The Company covenants and agrees that, upon exercise of the Purchase Warrants and payment of the Exercise Price therefor, in accordance with the terms hereby, all Shares and other securities issuable upon such exercise shall be duly and validly issued, fully paid and non-assessable and not subject to preemptive rights of any stockholder.

7. **Certain Notice Requirements**.

7.1. **Holder's Right to Receive Notice**. Nothing herein shall be construed as conferring upon the Holder the right to vote or consent or to receive notice as a stockholder for the election of directors or any other matter, or as having any rights whatsoever as a stockholder of the Company. If, however, at any time prior to the expiration of the Purchase Warrants and their exercise, any of the events described in Section 7.2 shall occur, then, in one or more of said events, the Company shall deliver to each Holder a copy of each notice relating to such events given to the other stockholders of the Company at the same time and in the same manner that such notice is given to the stockholder.

7.2. **Events Requiring Notice**. The Company shall be required to give the notice described in this Section 7 upon one or more of the following events: (i) if the Company shall take a record of the holders of its Shares for the purpose of entitling them to receive a dividend or distribution payable otherwise than in cash, or a cash dividend or distribution payable otherwise than out of retained earnings, as indicated by the accounting treatment of such dividend or distribution on the books of the Company, or (ii) the Company shall offer to all the holders of its Shares any additional shares of capital stock of the Company or securities convertible into or exchangeable for shares of capital stock of the Company, or any option, right or warrant to subscribe therefor.

7.3. **Notice of Change in Exercise Price**. The Company shall, within three (3) Business Days after an event requiring a change in the Exercise Price pursuant to Section 5 hereof, send notice to the Holders of such event and change ("**Price Notice**"). The Price Notice shall describe the event causing the change and the method of calculating same.

7.4. **Transmittal of Notices**. All notices, requests, consents and other communications under this Purchase Warrant shall be in writing and delivered personally, by e-mail, or sent by a nationally recognized overnight courier service to following addresses or to such other address as the Holder or the Company may designate by notice to the other party and shall be deemed given and effective on the earliest of (i) the time of transmission, if such notice or communication is delivered via e-mail (with confirmation of receipt from the intended recipient by return e-mail or other written acknowledgment) at the e-mail address set forth in this Section 7.4 prior to 5:30 p.m. (New York City time) on any date, (ii) the next Business Day after the time of transmission, if such notice or communication is delivered via e-mail (with confirmation of receipt from the intended recipient by return email or other written acknowledgment) at the e-mail address set forth in this Section 7.4 on a Calendar Day that is not a Business Day or later than 5:30 p.m. (New York City time) on any Business Day, (iii) the second Business Day following the date of mailing, if sent by U.S. nationally recognized overnight courier service, or (iv) upon actual receipt by the party to whom such notice is required to be given:

If to the Holder:

Spartan Capital Securities, LLC
45 Broadway, 19th Floor New York, NY 10006
Attention: Kim Monchik
E-mail: kmonchik@spartancapital.com

with a copy (which shall not constitute notice) to:

Kaufman & Canoles, P.C.
Two James Center, 14th Floor, 1021 E. Cary St., Richmond, VA 23219
Attention: Anthony Basch
E-mail: awbasch@kaufcan.com

If to the Company:

Lixte Biotechnology Holdings, Inc.
680 East Colorado Boulevard, Suite 180
Pasadena, CA 91101
Attention: Geordan Pursglove, Chief Executive Officer
E-mail: g.pursglove@2gpgroup.com

with a copy (which shall not constitute notice) to:

TroyGould PC
1801 Century Park East, 16th Floor
Los Angeles, CA 90067
Attention: David L. Ficksman

8. **Miscellaneous**.

8.1. **Amendments**. The Company and Holder may from time to time supplement or amend this Purchase Warrant without the approval of any of the Holders in order to cure any ambiguity, to correct or supplement any provision contained herein that may be defective or inconsistent with any other provisions herein, or to make any other provisions in regard to matters or questions arising hereunder that the Company and Holder may deem necessary or desirable and that the Company and Holder deem shall not adversely affect the interest of the Holders. All other modifications or amendments shall require the written consent of and be signed by (i) the Company and (ii) the Holder(s) of Purchase Warrants then-exercisable for at least a majority of the Shares then-exercisable pursuant to all then-outstanding Purchase Warrants.

8.2. **Headings**. The headings contained herein are for the sole purpose of convenience of reference, and shall not in any way limit or affect the meaning or interpretation of any of the terms or provisions of this Purchase Warrant.

8.3. **Entire Agreement**. This Purchase Warrant (together with the other agreements and documents being delivered pursuant to or in connection with this Purchase Warrant) constitutes the entire agreement of the parties hereto with respect to the subject matter hereof, and supersedes all prior agreements and understandings of the parties, oral and written, with respect to the subject matter hereof.

8.4. **Binding Effect**. This Purchase Warrant shall inure solely to the benefit of and shall be binding upon, the Holder and the Company and their permitted assignees, respective successors, legal representative and assigns, and no other person shall have or be construed to have any legal or equitable right, remedy or claim under or in respect of or by virtue of this Purchase Warrant or any provisions herein contained.

8.5. **Governing Law; Submission to Jurisdiction; Trial by Jury**. This Purchase Warrant shall be governed by and construed and enforced in accordance with the laws of the State of New York, without giving effect to conflict of laws principles thereof. The Company hereby agrees that any action, proceeding or claim against it arising out of, or relating in any way to this Purchase Warrant shall be brought and enforced in the state and federal courts located in the Borough of Manhattan in the City of New York, United States of America, and irrevocably submits to such jurisdiction, which jurisdiction shall be exclusive. The Company has irrevocably appointed Geordan Pursglove , as its agent to receive service of process or other legal summons for purposes of any such suit, action or proceeding. The Company hereby waives any objection to such exclusive jurisdiction and that such courts represent an inconvenient forum. Any process or summons to be served upon the Company may be served by transmitting a copy thereof by registered or certified mail, return receipt requested, postage prepaid, addressed to it at the address set forth in Section 7 hereof. Such mailing shall be deemed personal service and shall be legal and binding upon the Company in any action, proceeding or claim. The Company and the Holder agree that the prevailing party(ies) in any such action shall be entitled to recover from the other party(ies) all of its reasonable attorneys' fees and expenses relating to such action or proceeding and/or incurred in connection with the preparation therefor. The Company (on its behalf and, to the extent permitted by applicable law, on behalf of its stockholders and affiliates) and the Holder hereby irrevocably waive, to the fullest extent permitted by applicable law, any and all right to trial by jury in any legal proceeding arising out of or relating to this Agreement or the transactions contemplated hereby.

8.6. **Non-Waiver**. The failure of the Company or the Holder to at any time enforce any of the provisions of this Purchase Warrant shall not be deemed or construed to be a waiver of any such provision, nor to in any way affect the validity of this Purchase Warrant or any provision hereof or the right of the Company or any Holder to thereafter enforce each and every provision of this Purchase Warrant. No waiver of any breach, non-compliance or non-fulfillment of any of the provisions of this Purchase Warrant shall be effective unless set forth in a written instrument executed by the party or parties against whom or which enforcement of such waiver is sought; and no waiver of any such breach, non-compliance or non-fulfillment shall be construed or deemed to be a waiver of any other or subsequent breach, non-compliance or non-fulfillment.

8.7. **Exchange Agreement**. As a condition of the Holder's receipt and acceptance of this Purchase Warrant, Holder agrees that, at any time prior to the complete exercise of this Purchase Warrant by Holder, if the Company and Holder enter into an agreement ("**Exchange Agreement**") pursuant to which they agree that all outstanding Purchase Warrants will be exchanged for securities or cash or a combination of both, then Holder shall agree to such exchange and become a party to the Exchange Agreement.

[LIXT Underwriter Registered Purchase Warrant Signature Page Follows]

[LIXT Underwriter Registered Purchase Warrant Signature Page]

IN WITNESS WHEREOF, the Company has caused this Underwriter Registered Purchase Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

LIXTE BIOTECHNOLOGY HOLDINGS, INC.

By: _____
Name: Geordan Pursglove
Its: Chief Executive Officer

[Form to be used to exercise LIXT Underwriter Registered Purchase Warrant]

Date: _____, 20___

The undersigned hereby elects irrevocably to exercise the Purchase Warrant for _____ Shares, $0.0001 par value per share (the '**Shares**"), of Lixte Biotechnology Holdings, Inc., a Delaware corporation (the "**Company**"), and hereby makes payment of $____ (at the rate of $____ per Share) in payment of the Exercise Price pursuant thereto. Please issue the Shares as to which this Purchase Warrant is exercised in accordance with the instructions given below and, if applicable, a new Purchase Warrant representing the number of Shares for which this Purchase Warrant has not been exercised.

or

The undersigned hereby elects irrevocably to convert its right to purchase ___ Shares of the Company under the Purchase Warrant for _____ Shares, as determined in accordance with the following formula:

$$X = \frac{Y(A-B)}{A}$$

Where,

X = The number of Shares to be issued to Holder;
Y = The number of Shares for which the Purchase Warrant is being exercised;
A = The fair market value of one Share; and
B = The Exercise Price.

The undersigned agrees and acknowledges that the calculation set forth above is subject to confirmation by the Company and any disagreement with respect to the calculation shall be resolved by the Company in its sole discretion.

Please issue the Shares as to which this Purchase Warrant is exercised in accordance with the instructions given below and, if applicable, a new Purchase Warrant representing the number of Shares for which this Purchase Warrant has not been converted.

Holder: _____

By: _____
Name: _____
Its: _____

INSTRUCTIONS FOR REGISTRATION OF SECURITIES

Name: _____
(Print in Block Letters)

Address: _____
_____

NOTICE: The signature to this form must correspond with the name as written upon the face of the Purchase Warrant without alteration or enlargement or any change whatsoever.

[Form to be used to assign LIXT Underwriter Registered Purchase Warrant]

ASSIGNMENT

(To be executed by the registered Holder to effect a transfer of the Purchase Warrant dated [●], 2025 issued by Lixte Biotechnology Holdings, Inc.):

FOR VALUE RECEIVED, _____ does hereby sell, assign and transfer unto the right to purchase ____ shares of Common Stock, $0.0001 par value per share, of Lixte Biotechnology Holdings, Inc., a Delaware corporation (the "**Company**"), evidenced by the Purchase Warrant and does hereby authorize the Company to transfer such right on the books of the Company.

Dated: _____, 20__

Holder: _____

By: _____
Name: _____
Its: _____

NOTICE: The signature to this form must correspond with the name as written upon the face of the Purchase Warrant without alteration or enlargement or any change whatsoever.

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement on Form S-1 (File No. 333-_____) of our report dated March 24, 2025, relating to the consolidated financial statements of Lixte Biotechnology Holdings, Inc., as of and for the years ended December 31, 2024 and 2023 (which report includes an explanatory paragraph regarding substantial doubt about the Company's ability to continue as a going concern) included in Lixte Biotechnology Holdings, Inc.'s Annual Report on Form 10-K for the fiscal year ended December 31, 2024, filed with the Securities and Exchange Commission. We also consent to the reference to our firm under the caption "Experts" in the Prospectus, which is part of this Registration Statement.

/s/ Weinberg & Company, P.A.
Los Angeles, California
June 17, 2025

Exhibit 99.1

CONSENT OF DIRECTOR NOMINEE

In connection with the filing by Lixte Biotechnology Holdings, Inc. (the "Company") of the Registration Statement on Form S-1, and in all subsequent amendments and post-effective amendments or supplements thereto, with the Securities and Exchange Commission under the Securities Act of 1933, as amended (the "Securities Act"), I hereby consent, pursuant to Rule 438 of the Securities Act, to be named as a nominee to the Board of Directors of the Company in the Registration Statement and any and all amendments and supplements thereto. I also consent to the filing of this consent as an exhibit to the Registration Statement and any amendments thereto.

Dated: June 17, 2025

By: */s/ Peter Stazzone*
Peter Stazzone

Exhibit 107

Calculation of Filing Fee Table

FORM S-1
REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933
(Form Type)
Lixte Biotechnology Holdings, Inc.
(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered Securities

	Security Type	Security Class Title	Fee Calculation Rule	Amount Registered	Proposed Maximum Offering Price Per Share	Maximum Aggregate Offering Price (1)	Fee Rate	Amount of Registration Fee
Newly Registered Securities								
Fees to Be Paid	Equity	Common stock, par value $0.00001 per share (2)	457(o)			$ 6,000,000	0.00015310	$ 918.60
	Equity	Pre-Funded Warrants to purchase shares of common stock (3)	457(g)	-	-	-	-	(4)
	Equity	Common Stock underlying the Pre-Funded Warrants (2) (3)	457(o)	-	-	-	-	(3)
Fees Previously Paid	-	-	-	-	-	-	-	-
		Total Offering Amounts				$ 6,000,000		$ 918.60
		Total Fees Previously Paid				$ -		$ -
		Total Fee Offsets				$ -		$ -
		Net Fees Due				$ -		$ 918.60

(1) Estimated solely for the purpose of calculating the amount of the registration fee in accordance with Rule 457(o) under the Securities Act of 1933 (the "Securities Act").
(2) Pursuant to Rule 416 under the Securities Act, the securities registered hereby also include an indeterminate number of additional securities as may from time to time become issuable by reason of stock splits, stock dividends, recapitalizations, or other similar transactions.
(3) 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 $6,000,000.
(4) No separate registration fee is payable pursuant to Rule 457(g) under the Securities Act.