As filed with the Securities and Exchange Commission on November 5, 2024.

Registration No. 333-282781

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

AMENDMENT NO. 2
TO
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	**100**	**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.

This offering will end no later than November 30, 2024, unless we decide to terminate the offering earlier (which we may do at any time at our discretion) prior to that date.

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 November 5, 2024

PRELIMINARY PROSPECTUS

LIXTE BIOTECHNOLOGY HOLDINGS, INC.

Up to 1,895,734 Units, each consisting of

One Share of Common Stock or One Pre-Funded Warrant to purchase One Share of Common Stock and One and One-Quarter Common Warrants to purchase One Share of Common Stock

Up to 1,895,734 Shares of Common Stock

Up to 1,895,734 Pre-Funded Warrants to purchase up to 1,895,734 Shares of Common Stock

Up to 2,369,667 Warrants to purchase Shares of Common Stock

Up to 2,369,667 Shares of Common Stock Underlying the Common Warrants

We are offering on a reasonable best efforts basis up to 1,895,734 units ("Units"), each consisting of one share of common stock, par value $0.0001 per share ("common stock") or one pre-funded warrant to purchase one share of common stock ("Pre-Funded Warrant") and one and one-quarter (1.25) common stock purchase warrants to purchase one share of common stock (each, a "Common Warrant") at an assumed public offering price of $2.11 per Unit, which was the closing price of our common stock on the Nasdaq Capital Market ("Nasdaq") on October 31, 2024, for gross proceeds of up to approximately $4,000,000. Each Common Warrant offered hereby is immediately exercisable on the date of issuance at an exercise price per share of common stock equal to $[*] (110% of the offering price per Unit in this offering) and will expire five years from the date of issuance.

The public offering price per Unit will be determined between us and the placement agent 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 Unit. The Units have no stand-alone rights and will not be certified or issued as stand-alone securities. The common stock or Pre-Funded Warrants (as defined below) and Common Warrants are immediately separable and will be issued separately in this offering.

Our common stock is listed on Nasdaq under the symbol "LIXT". The closing price of our common stock on Nasdaq on October 31, 2024 was $2.11 per share.

We are also offering to investors in Units that would otherwise result in the investor's beneficial ownership exceeding 4.99% of our outstanding common stock immediately following the consummation of this offering the opportunity to invest in Units consisting of one Pre-Funded Warrant) (in lieu of one share of common stock) and one Common Warrant. 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. Each Pre-Funded Warrant will be exercisable for one share of common stock. The purchase price of each Unit including a Pre-Funded Warrant will be equal to the price per Unit including one share of common stock, minus $0.001, and the exercise price of each Pre-Funded Warrant will equal $0.001 per share. 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 Unit that includes a Pre-Funded Warrant purchased (without regard to any limitation on exercise set forth therein), the number of Units including a share of common stock we are offering will be decreased on a one-for-one basis. The Units have no stand-alone rights and will not be certificated or issued as stand-alone securities. The shares of common stock (or Pre-Funded Warrants) and the Common Warrants comprising the Units are immediately separable and will be issued separately in this offering.

The securities will be offered at a fixed price and are expected to be issued in a single closing. We expect this offering to be completed not later than one business day following the commencement of sales in this offering (after the effective date of the registration statement of which this prospectus forms a part) and we will deliver all securities to be issued in connection with this offering delivery versus payment or receipt versus payment, as the case may be, upon receipt of investor funds received by us. Accordingly, neither we nor the placement agent have made any arrangements to place investor funds in an escrow account or trust account since the placement agent will not receive investor funds in connection with the sale of the securities offered hereunder. This offering will end no later than November 30, 2024, unless we decide to terminate the offering earlier (which we may do at any time at our discretion) prior to that date.

We have engaged WallachBeth Capital LLC (the "placement agent" or "WallachBeth"), to act as our exclusive placement agent in connection with this offering. The placement agent has agreed to use its reasonable best efforts to arrange for the sale of the securities offered by this prospectus. The placement agent is not purchasing or selling any of the securities we are offering and the placement agent is not required to arrange the purchase or sale of any specific number of securities or dollar amount. We have agreed to pay to the placement agent the placement agent fees set forth in the table below, which assumes that we sell all of the securities offered by this prospectus. There is no arrangement for funds to be received in escrow, trust or similar arrangement. There is no minimum offering requirement as a condition of closing of this offering. We may sell fewer than all of the Units offered hereby, which may significantly reduce the amount of proceeds received by us. Because there is no escrow account and no minimum number of securities or amount of proceeds, investors could be in a position where they have invested in us, but we have not raised sufficient proceeds in this offering to adequately fund the intended uses of the proceeds as described in this prospectus, including regaining compliance with Nasdaq's listing standards. See "Risk Factors" for more information regarding risks related to this offering. We will bear all costs associated with the offering. See "Plan of Distribution" for more information regarding these arrangements.

There is no established trading market for the Pre-Funded Warrants or the Common Warrants and we do not expect an active trading market to develop. We do not intend to list the Pre-Funded Warrants or the Common 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 18 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 Unit[(1)]	Total
Public offering price	$	$
Placement agent fees[(2)]		
Proceeds to us, before expenses	$	$

(1) Assumes all Units consist of one share of common stock and 1.25 Common Warrants.

(2) We have agreed to pay the placement agent a cash fee equal to 7.0% of the aggregate gross proceeds raised in this offering, and to reimburse the placement agent for certain of its offering-related expenses, including its legal fees, up to a maximum of $75,000. See "Plan of Distribution" for a description of the compensation to be received by the placement agent.

Delivery of the securities hereby is expected to be made on or about November __, 2024, subject to the satisfaction of customary closing conditions.

Sole Placement Agent

WallachBeth Capital LLC

The date of this prospectus is November __, 2024.

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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 and the placement agent has not authorized anyone to provide you with information different from that contained in this prospectus. We are offering to sell, and seeking offers to buy, our securities only 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.

Neither we nor the placement agent have 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 common stock, 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 corporate office is located in Pasadena, California.

Our product pipeline is primarily focused on inhibitors of protein phosphatase 2A, which is 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.

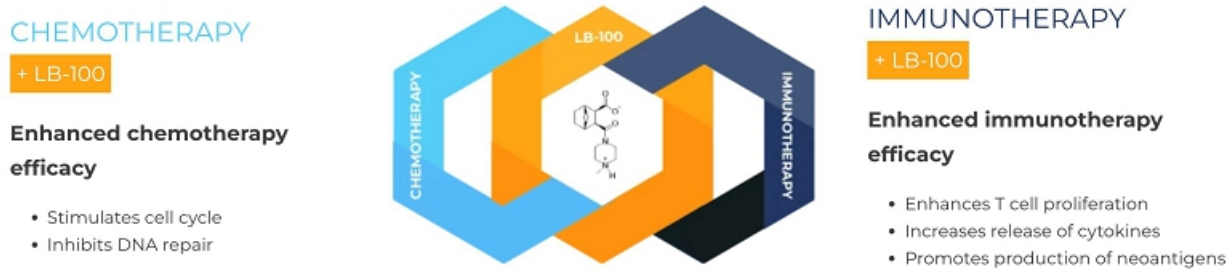
Our activities are subject to significant risks and uncertainties, including the need for additional capital. We have not yet commenced any revenue-generating operations, do not have positive cash flows from operations, rely on stock-based compensation for a substantial portion of employee and consultant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

We are focusing our development activities on our lead compound LB-100. 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 our 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.

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

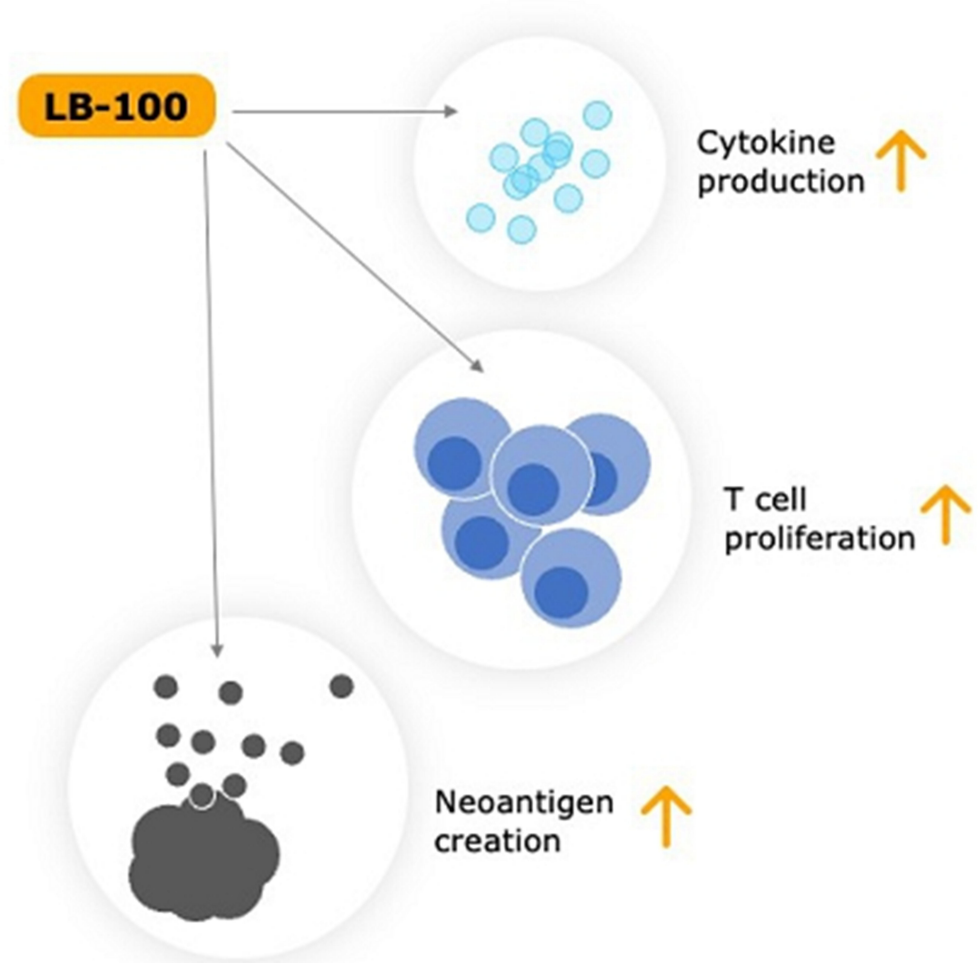


LB-100, a small molecule potent inhibitor of PP2A, was designed and developed by us. Numerous preclinical studies have documented that LB-100 potentiates most if not all anti-cancer drugs that damage DNA. LB-100 is not associated with any increase in cytotoxicity when given with cytotoxic drugs. This 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.

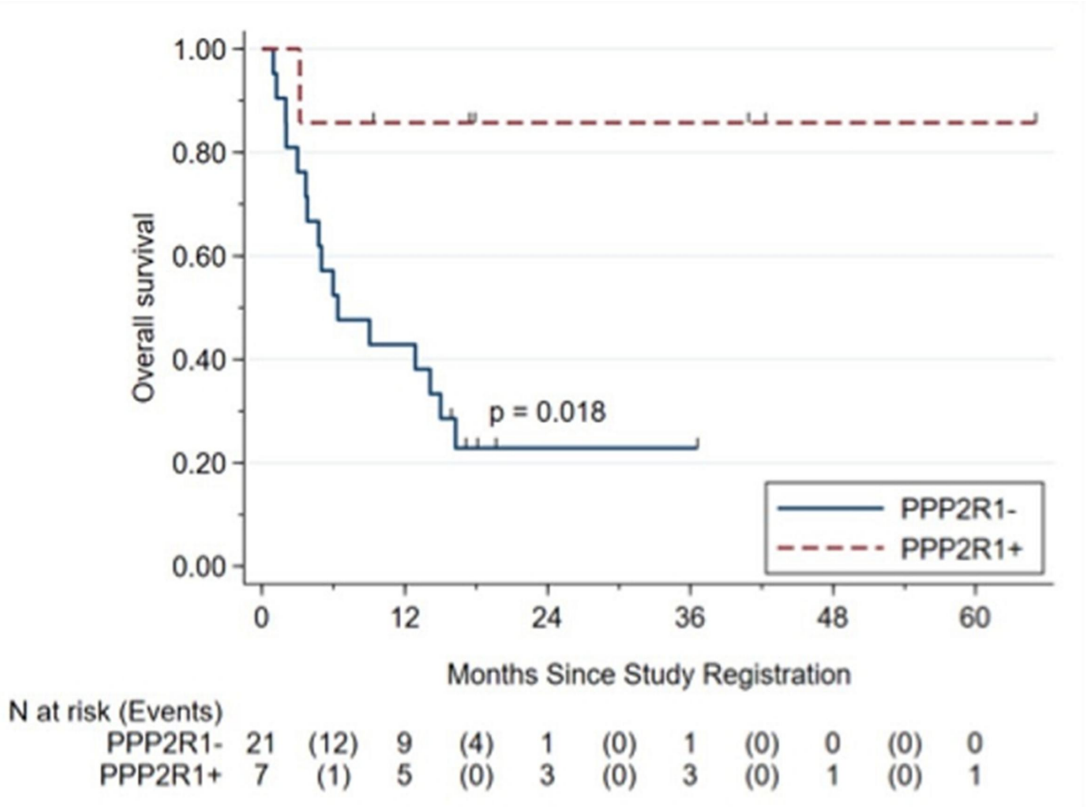
In its initial Phase 1 clinical trial, LB-100 given alone daily for 3 days was non-toxic, except for a transient increase in serum creatinine believed to be caused by inhibition of PP2A in the renal tubules. In the Phase 1 clinical trial, the Maximum Tolerated Dose (“MTD”) was 2.33mg/m2 daily for 3 days 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.

Based on the DNA damage enhancing effect of PP2A inhibition with LB-100, we initiated a study in Advanced Soft Tissue Sarcoma (“ASTS”) with the Spanish Sarcoma Group (Grupo Español de Investigación en Sarcomas or “GEIS”) for a collaborative clinical trial in Madrid, Spain.

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.

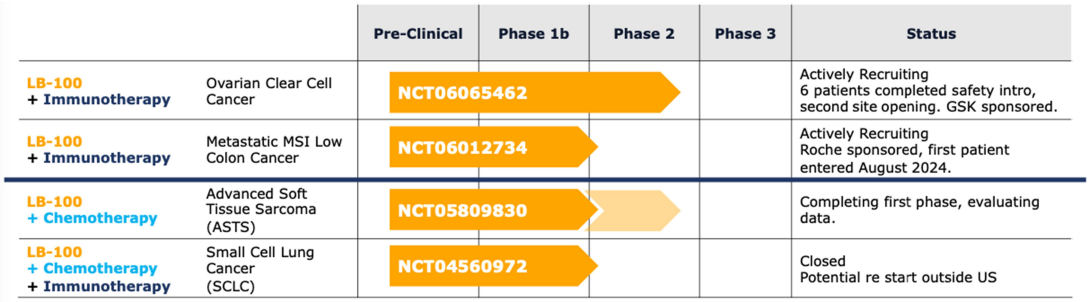


Ovarian clear cell carcinoma patients with inactivating mutations in PPP2R1A, a gene coding for a scaffold component of PP2A, and treated with immune checkpoint inhibitors, were recently found to have markedly longer survival than patients without the mutation in their cancers. Retrospective reviews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



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 June 30, 2024. We expect to have data on toxicity and preliminary efficacy from this portion of the clinical trial in the quarter ending December 31, 2024, and subject to clinical results and the availability of capital resources, anticipate that we will be in a position to decide whether to proceed to a related Phase 2 portion of the study at that time.

The interim analysis of this clinical trial will be done before full accrual of patients is completed to determine whether the study has the possibility of showing superiority of the combination of LB-100 plus doxorubicin compared to doxorubicin alone. A positive study would have the potential to change the standard therapy for this disease after four decades of failure to improve the marginal benefit of doxorubicin alone.

Clinical Research Support Agreement Relating to Small Cell Lung Cancer

We have 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 the Company's intent to terminate the Clinical Research Support Agreement effective as of July 8, 2024. We plan to review possible other sites for the clinical trial.

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.

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 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 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. Evaluation is underway to determine next steps. For additional information about SAEs, see the risk factor entitled "*A clinical trial hold due to serious adverse events could delay or halt the development of our product candidate"* at "Risk Factors" elsewhere in this document.

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.

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 our lead clinical compound in development. We have filed patent applications covering the treatment of cancer with LB-100. We have 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 such as an immune checkpoint inhibitor and a WEE1 inhibitor.

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 our patent rights, which are owned solely by our wholly-owned Delaware subsidiary, Lixte Biotechnology, Inc., except in several instances jointly with one of our many collaborators. We also rely on trade secrets relating to our proprietary pipeline of product candidates and on know-how and continuing technological innovation to develop and strengthen our 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 our 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 our patents; preserve the confidentiality of our 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 our 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 our solely or jointly owned patents are valid and enforceable.

Going Concern

We have a history of operating losses since inception. Because we are currently engaged in various early-stage clinical trials, it is expected that it will take a significant amount of time and resources to develop any product or intellectual property capable of generating sustainable revenues. Accordingly, our business is unlikely to generate any sustainable operating revenues in the next several years and may never do so. Even if we are able to generate revenues through licensing our technology, product sales or other commercial activities, there can be no assurance that we will be able to achieve and maintain positive earnings and operating cash flows. As discussed further in "Management's Discussion and Analysis - Liquidity and Capital Resources", included in the our Annual Report on Form 10-K for the fiscal year ended December 31, 2023, which is incorporated herein by reference, our auditor has included a "going concern" explanatory paragraph in its report on our consolidated financial statements for the fiscal year ended December 31, 2023, expressing substantial doubt about our ability to continue as a going concern for the next twelve months. Our consolidated financial statements do not include any adjustments that may result from the outcome of this uncertainty. If we cannot secure the financing needed to continue as a viable business, our shareholders may lose some or all of their investment in us.

Nasdaq Compliance

On August 19, 2024, we received a deficiency letter from the Listing Qualifications Department of Nasdaq indicating that we are not in compliance with Nasdaq Listing Rule 5550(b)(1) (the "Stockholders' Equity Rule"), which requires us to maintain a minimum stockholders' equity of $2,500,000. This notice of non-compliance has no immediate impact on the continued listing or trading of our securities on Nasdaq, which will continue to be listed and traded on Nasdaq, subject to our compliance with the other Nasdaq continued listing requirements.

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

On October 21, 2024, Nasdaq provided us notice that it had granted an extension through February 18, 2025 to regain compliance with the Stockholders' Equity Rule. We must complete our capital raising initiatives and evidence compliance with the Stockholders' Equity Rule through filing a Current Report on Form 8-K with the Securities and Exchange Commission (the "SEC") providing certain required information by February 18, 2025.

If we fail to evidence compliance with the Stockholders' Equity Rule upon filing our periodic report for the quarter ending March 31, 2025 with the SEC, we may be subject to delisting. If Nasdaq determines to delist our common stock, we will have the right to appeal to a Nasdaq hearings panel. The hearing request would stay any suspension or delisting action pending the conclusion of the hearing process.

We intend to take reasonable measures available to regain compliance under Nasdaq's listing rules and to remain listed on Nasdaq. However, there can be no assurances that we will ultimately regain compliance with the Stockholders' Equity Rule, or be able to maintain compliance with all other applicable requirements for continued listing on Nasdaq. If we do not regain compliance with Nasdaq's listing rules within the time period permitted by Nasdaq, then our securities will be delisted from Nasdaq.

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 our Board of Directors. Our common stock and Common Warrants are traded on Nasdaq 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 Nasdaq.

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.

THE OFFERING

Issuer:	Lixte Biotechnology Holdings, Inc.
Securities offered by us:	Up to 1,895,734 Units, each Unit consisting of one share of our common stock, and one and one-quarter (1.25) Common Warrants to purchase one share of our common stock. Each Common Warrant will have an assumed exercise price of $[*] per share (110% of the public offering price of one Unit), is exercisable immediately and will expire on the fifth anniversary of the original issuance date. We are also offering to investors in Units that would otherwise result in the investor's beneficial ownership exceeding 4.99% of our outstanding common stock immediately following the consummation of this offering the opportunity to invest in Units consisting of one Pre-Funded Warrant to purchase one share of common stock in lieu of one share of common stock and one Common Warrant. For each Unit including a Pre-Funded Warrant purchased (without regard to any limitation on exercise set forth therein), the number of Units including a share of common stock we are offering will be decreased on a one-for-one basis. Subject to limited exceptions, a holder of Pre-Funded Warrants will not have the right to exercise any portion of its Pre-Funded Warrant 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. Each Pre-Funded Warrant will be exercisable for one share of common stock. The purchase price of each Unit including a Pre-Funded Warrant will be equal to the price per Unit including one share of common stock, minus $0.001, and the exercise price of each Pre-Funded Warrant will equal $0.001 per share. The Pre-Funded Warrants will be immediately exercisable (subject to the beneficial ownership cap) and may be exercised at any time in perpetuity until all of the Pre-Funded Warrants are exercised in full. This offering also relates to the shares of common stock issuable upon the exercise of the Pre-Funded Warrants. The Units will not be certificated or issued in stand-alone form. The shares of our common stock (or Pre-Funded Warrants) and the Common Warrants comprising the Units are immediately separable upon issuance and will be issued separately in this offering.

Number of shares of common stock being offered by us:	Up to 1,895,734 shares of common stock (assuming the sale of the maximum number of Units covered by this prospectus, no issuance of Pre-Funded Warrants, and no exercise of the Common Warrants issued in this offering).
Number of Common Warrants being offered by us:	Common Warrants to purchase up to 2,369,667 shares of common stock.
Assumed public offering price:	$2.11 per Unit, which is the closing price of our common stock on Nasdaq on October 31, 2024.
Common stock outstanding immediately prior to this offering:	2,249,290 shares of common stock.
Common stock to be outstanding immediately after this offering:	Up to 4,145,024 shares [(1)] (assuming the sale of the maximum number of Units covered by this prospectus, no issuance of Pre-Funded Warrants, and no exercise of the Common Warrants issued in this offering).
Use of proceeds:	Assuming the maximum number of Units are sold in this offering at an assumed public offering price of $2.11 per Unit, which represents the closing price of our common stock on Nasdaq on October 31, 2024, and assuming no issuance of Pre-Funded Warrants in connection with this offering, we estimate that the net proceeds from our sale of Units in this offering will be approximately $3,495,000, after deducting the placement agent fees and estimated offering expenses payable by us. However, because this is a reasonable best efforts offering with no minimum number of securities or amount of proceeds as a condition to closing, we may not sell all or any of these securities offered pursuant to this prospectus and we may receive significantly less in net proceeds. We currently intend to use the net proceeds from this offering for working capital and general corporate purposes. See "Use of Proceeds".
Description of Common Warrants:	Each Common Warrant will have an exercise price per share of 110% of the public offering price per Unit, will be exercisable immediately and will expire on the fifth anniversary of the original issuance date. Each Common Warrant is exercisable for one share of common stock, subject to adjustment in the event of stock dividends, stock splits, stock combinations, reclassifications, reorganizations or similar events affecting our common stock as described herein. Each holder of Common Warrants will be prohibited from exercising its Common Warrant for shares of our common stock if, as a result of such exercise, the holder, together with its affiliates, would own more than 4.99% of the total number of shares of our common stock then issued and outstanding. However, any holder may increase such percentage to any other percentage not in excess of 9.99%. The Common Warrants will be issued in certificated form. This offering also relates to the offering of the shares of common stock issuable upon the exercise of the Common Warrants. For more information regarding the Common Warrants, you should carefully read the section titled "Description of Securities We Are Offering — Common Warrants" in this prospectus.

Placement Agent Common Warrants:	Upon the closing of this offering, we will issue to WallachBeth or its designee, as the placement agent in this offering, Common Warrants (the "Placement Agent Common Warrants") entitling it to purchase a number of shares of common stock equal to 3.0% of the Units sold in this offering at an exercise price equal to no less than 110% of the public offering price in the offering (the "Placement Agent Common Warrants"). The Placement Agent Common Warrants shall be exercisable at any time after issuance and will expire five years after the effective date of the registration statement. However, neither the Placement Agent Common Warrants nor the common stock underlying them will be transferable until 180 days after the effective date of the registration statement of which this prospectus forms a part. This offering also relates to the offering of the shares of common stock issuable upon the exercise of the Placement Agent Common Warrants.
Placement agent compensation:	Upon the closing of this offering, we will pay WallachBeth a cash transaction fee equal to 7.0% of the aggregate gross cash proceeds to us from the sale of the securities in the offering. In addition, we will reimburse WallachBeth for certain out-of-pocket expenses, including legal fees, related to the offering up to a maximum of $75,000. See "Plan of Distribution".
Reasonable best efforts offering:	We have agreed to offer and sell the securities offered hereby directly to the purchasers. We have retained WallachBeth to act as our exclusive placement agent to use its reasonable best efforts to solicit offers to purchase the securities offered by this prospectus. The placement agent is not required to buy or sell any specific number or dollar amount of the securities offered hereby. See "Plan of Distribution" beginning on page 35 of this prospectus.
Nasdaq trading symbol:	Our common stock currently trades on Nasdaq under the symbol "LIXT". We do not intend to list the Pre-Funded Warrants or Common Warrants offered hereunder on any stock exchange.
Transfer agent, Common Warrant 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" beginning on page 18.

(1) The number of shares of our common stock to be outstanding following this offering is based on 2,249,290 shares of common stock outstanding as of October 31, 2024 and excludes:

- 72,917 shares of our common stock issuable upon the conversion of 350,000 shares of Series A Convertible Preferred Stock outstanding at a conversion rate of 0.2083 common shares per preferred share, reflecting a conversion price of $48.00 per common share;
- 605,348 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 $13.8396 per share;
- 808,365 shares of our common stock issuable upon the exercise of outstanding common stock Warrants at a weighted average exercise price of $16.4074 per share;
- 198,402 shares of common stock reserved for future grants pursuant to our 2020 Stock Incentive Plan, as amended (the "2020 Plan");
- 2,369,667 shares of our common stock issuable upon the exercise of the Common Warrants; and
- 56,872 shares of our common stock issuable upon the exercise of the Placement Agent Common Warrants to be issued in this offering.

Unless otherwise indicated, this prospectus also assumes that no Pre-Funded Warrants are issued.

RISK FACTORS

Investing in our common stock and Common Warrants 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, 2023, as well as in our subsequent Quarterly Reports filed with the Securities and Exchange Commission (the "SEC"), 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.

The Company's 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 assurance 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. Evaluation is underway to determine next steps.

Risks Related to this Offering and Ownership of our Securities

This is a reasonable best efforts offering, with no minimum amount of securities required to be sold, and we may sell fewer than all of the securities offered hereby.

The placement agent has agreed to use its reasonable best efforts to solicit offers to purchase the Units in this offering. The placement agent has no obligation to buy any of the securities from us or to arrange for the purchase or sale of any specific number or dollar amount of the securities. There is no required minimum number of securities that must be sold as a condition to complete this offering. As there is no minimum offering amount required as a condition to the closing of this offering, the actual offering amount, placement agent fees and proceeds to us are not presently determinable and may be substantially less than the maximum amounts set forth in this prospectus. We may sell fewer than all of the securities offered hereby, which would significantly reduce the amount of proceeds received by us, and investors in this offering will not receive a refund in the event that we do not sell all of the Units offered in this offering. The success of this offering will impact our ability to use the proceeds to execute our business plans. We may have insufficient capital to implement our business plans, potentially resulting in greater operating losses or dilution unless we are able to raise capital from alternative sources.

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 $0.72 per share based on the assumed public offering price of $2.11 per Unit. Investors in this offering will pay a price per Unit 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.

Our management will have broad discretion over the use of the proceeds we receive in this offering and might not apply the proceeds in ways that increase the value of your investment.

Our management will have broad discretion over the use of our net proceeds from this offering, and you will be relying on the judgment of our management regarding the application of these proceeds. Our management might not apply our net proceeds in ways that ultimately increase the value of your investment. We expect to use the net proceeds from this offering for working capital and general corporate purposes.

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 $5,087,029 and $6,312,535 for the years ended December 31, 2023 and 2022, respectively, and $1,982,241 for the six months ended June 30, 2024. 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, 2023 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 continued listing requirements. If we are unable to regain compliance with Nasdaq’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 of Nasdaq indicating that we do not comply with the minimum stockholders’ equity requirement for continued listing on Nasdaq under the Stockholders’ Equity Rule because our stockholders’ equity was less than the required minimum of $2,500,000. As of June 30, 2024, our stockholders’ equity was $2,246,139 and we have not regained compliance with the Stockholders’ Equity Rule subsequent to that date.

On October 3, 2024, we submitted a letter to Nasdaq with our plan to regain compliance with the Stockholders’ Equity Rule, which outlined our proposed initiatives to regain compliance by raising equity capital through various registered equity offerings, including the estimated proceeds from this offering of $3,495,000.

On October 21, 2024, Nasdaq provided us notice that it had granted an extension through February 18, 2025 to regain compliance with the Stockholders’ Equity Rule. We must complete our capital raising initiatives and evidence compliance with the Stockholders’ Equity Rule through filing a Current Report on Form 8-K with the SEC providing certain required information by February 18, 2025.

If we fail to evidence compliance with the Stockholders’ Equity Rule upon filing our periodic report for the quarter ending March 31, 2025 with the SEC, we may be subject to delisting. If Nasdaq determines to delist our common stock, we will have the right to appeal to a Nasdaq hearings panel. The hearing request would stay any suspension or delisting action pending the conclusion of the hearing process.

We intend to take reasonable measures available to regain compliance under Nasdaq’s listing rules and to remain listed on Nasdaq. However, there can be no assurances that we will ultimately regain compliance with the Stockholders’ Equity Rule, or be able to maintain compliance with all other applicable requirements for continued listing on Nasdaq. If we do not regain compliance with Nasdaq’s listing rules within the time period permitted by Nasdaq, then our securities will be delisted from Nasdaq.

We cannot assure you that we will be able to regain compliance with Nasdaq 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, our Common Warrants would also be delisted. We and holders of our securities could be materially adversely impacted if our securities are delisted from Nasdaq. 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 Nasdaq 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 activities result in significant dilution, it 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, or *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.

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

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

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

The Common Warrants and 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. Specifically, commencing on the date of issuance, holders of the Common Warrants may exercise their right to acquire the common stock and pay an exercise price of $[*] per share (110% of the public offering price of a Unit), prior to five years from the date of issuance, after which date any unexercised Common Warrants will expire and have no further value. In the case of Pre-Funded Warrants, holders may exercise their right to acquire the common stock and pay an exercise price of $0.001 per share. The Pre-Funded Warrants do not expire. Until holders of the Common Warrants or Pre-Funded Warrants acquire shares of our common stock upon exercise of the Common Warrants or Pre-Funded Warrants, the holders will have no rights with respect to shares of our common stock issuable upon exercise of the Common Warrants or Pre-Funded Warrants. Upon exercise of the Common Warrants or 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.

Provisions of the Common Warrants could discourage an acquisition of us by a third party.

Certain provisions of the Common Warrants could make it more difficult or expensive for a third party to acquire us. The Common Warrants prohibit us from engaging in certain transactions constituting "fundamental transactions" unless, among other things, the surviving entity assumes our obligations under the Common Warrants. These and other provisions of the Common Warrants offered by this prospectus could prevent or deter a third party from acquiring us even where the acquisition could be beneficial to you.

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 common shares 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.

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 Nasdaq, 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 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. These fluctuations may be even more pronounced in the trading market for our stock shortly following this offering. 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.

This offering may cause the trading price of our common stock to decrease.

The number of shares of common stock underlying the securities we propose to issue and ultimately will issue if this offering is completed, may result in an immediate decrease in the trading price of our common stock. This decrease may continue after the completion of this offering. If the bid price of our common stock falls below $1.00 per share for 30 consecutive business days, we would no longer meet Nasdaq's minimum bid price requirement and our common stock could be subject to delisting. We cannot predict the effect, if any, that the availability of shares for future sale represented by the Pre-Funded Warrants or Common Warrants issued in connection with the offering 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 SEC 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 Nasdaq 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 analyst 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 and the placement agent 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 placement agent 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.

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

In addition to rights and remedies available to all purchasers in this offering under federal securities and state law, the purchasers that enter into a securities purchase agreement will also be able to bring claims for breach of contract against us. The ability to pursue a claim for breach of contract provides those investors with the means to enforce the covenants uniquely available to them under the securities purchase agreement including timely delivery of shares and indemnification for breach of contract.

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;
- 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 received 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 SEC 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 $3,495,000 (assuming the sale of all Units offered hereby at the assumed public offering price of $2.11 per Unit, which represents the closing price of our common stock on Nasdaq on October 31, 2024 and assuming no issuance of Pre-Funded Warrants), after deducting placement agent fees and estimated offering expenses payable by us. However, because this is a reasonable best efforts offering with no minimum number of securities or amount of proceeds as a condition to closing, the actual offering amount, placement agent fees and net proceeds to us are not presently determinable and may be substantially less than the maximum amounts set forth on the cover page of this prospectus, and we may not sell all or any of the securities we are offering. As a result, we may receive significantly less in net proceeds. Based on the assumed offering price set forth above, we estimate that our net proceeds from the sale of 75%, 50% or 25% of the Units offered in this offering would be approximately $2,565,000, $1,635,000 and $705,000, respectively, after deducting placement agent fees and estimated offering expenses payable by us.

We currently intend to use the net proceeds of this offering as working capital and for general corporate purposes.

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 June 30, 2024 as follows:

- on an actual basis; and
- on an as adjusted basis to reflect the issuance and sale by us of 1,895,734 Units in this offering at the assumed public offering price of $2.11 per Unit (assuming no issuance of Pre-Funded Warrants), after deducting placement agent fees and estimated offering expenses payable by us and the receipt by us of the proceeds of such sale.

The information below is illustrative only. Our capitalization following the closing of this 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 "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the consolidated financial statements and related notes included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2023, our Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2024, and subsequent Exchange Act reports.

	As of June 30, 2024	
	Actual (Unaudited)	As Adjusted (Unaudited)
Cash	$ 2,595,222	$ 6,090,222
Stockholders' equity:		
Preferred stock, $0.0001 par value per share, 10,000,000 shares authorized, issued and outstanding 350,000 shares	$ 3,500,000	$ 3,500,000
Common stock, $0.0001 par value per share; 100,000,000 shares authorized, issued and outstanding 2,249,290 shares actual, and 4,145,024 shares on an as adjusted basis	225	415
Additional paid-in capital	49,209,883	52,704,693
Accumulated deficit	(50,463,969)	(50,463,969)
Total stockholders' equity	2,246,139	5,741,139
Total capitalization	$ 2,246,139	$ 5,741,139

The number of shares of our common stock outstanding set forth in the table above excludes, as of June 30, 2024:

- 72,917 shares of our common stock issuable upon the conversion of 350,000 shares of Series A Convertible Preferred Stock outstanding at a conversion rate of 0.2083 common shares per preferred share, reflecting a conversion price of $48.00 per common share;
- 605,348 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 $13.8396 per share;
- 808,365 shares of our common stock issuable upon the exercise of outstanding common stock Warrants at a weighted average exercise price of $16.4074 per share;
- 198,402 shares of common stock reserved for future grants pursuant to our 2020 Plan;
- 2,369,667 shares of our common stock issuable upon the exercise of the Common Warrants to be issued in this offering; and
- 56,872 shares of our common stock issuable upon the exercise of the Placement Agent Common Warrants to be issued in this offering.

DILUTION

If you invest in our Units 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 that is part of the Unit 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 (deficit) as of June 30, 2024 was $2,246,139, or $1.00 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 that is part of the Unit 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 Units in the offering at an assumed public offering price of $2.11 per Unit, and after deduction of placement agent fees from gross proceeds raised in the offering and estimated offering expenses payable by us, our as adjusted net tangible book value as of June 30, 2024 would have been $5,741,139 or $1.39 per share of common stock. This represents an immediate increase in net tangible book value of $0.39 per share of common stock to existing stockholders and an immediate dilution in net tangible book value of $0.72 per share of common stock to investors in the offering, as illustrated in the following table, based on common shares outstanding as of June 30, 2024.

The information below is illustrative only and assumes the maximum offering amount 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 "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the financial statements and related notes included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2023, our Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2024, and subsequent Exchange Act reports.

Assumed offering price per share of common stock (attributing no value to Common Warrants)			$	2.11
Actual net tangible book value per share of common stock before this offering[(1)]	$	1.00		
Increase in net tangible book value per share attributable to new investors[(2)]	$	0.39		
Net tangible book value per share after this offering[(3)]			$	1.39
Immediate dilution in net tangible book value per share to new investors			$	0.72

(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 June 30, 2024.
(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 $0.50 in the assumed public offering price of $2.11 per Unit would increase the net tangible book value per share after this offering by $0.14 per share and the dilution to new investors purchasing Units in this offering by $0.37 per share, assuming the number of Units offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting placement agent fees and estimated offering expenses payable by us.

A decrease of $0.50 in the assumed public offering price of $2.11 per Unit would decrease the net tangible book value per share after this offering by $0.17 per share and the dilution to new investors purchasing Units in this offering by $0.33 per share, assuming the number of Units offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting placement agent fees and estimated offering expenses payable by us.

If we only sell 75%, 50% or 25% of the maximum offering amount, our net tangible book value per share after this offering would be $1.31, $1.21 or $1.08, respectively, and the immediate dilution in net tangible book value per share to new investors purchasing Units in this offering would be $0.80, $0.90 or $1.03, respectively, assuming no Pre-Funded Warrants are issued and no Common Warrants are exercised, and after deducting placement agent fees and estimated offering expenses payable by us.

The information discussed above is illustrative only and will adjust based on the actual public offering price, the actual number of Units 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 Units 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 set forth in the table above excludes, as of June 30, 2024:

- 72,917 shares of our common stock issuable upon the conversion of 350,000 shares of Series A Convertible Preferred Stock outstanding at a conversion rate of 0.2083 common shares per preferred share, reflecting a conversion price of $48.00 per common share;
- 605,348 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 $13.8396 per share;
- 808,365 shares of our common stock issuable upon the exercise of outstanding common stock Warrants at a weighted average exercise price of $16.4074 per share;
- 198,402 shares of common stock reserved for future grants pursuant to our 2020 Plan;
- 2,369,667 shares of our common stock issuable upon the exercise of the Common Warrants to be issued in this offering; and
- 56,872 shares of our common stock issuable upon the exercise of the Placement Agent Common Warrants to be issued in this offering.

SELECTED HISTORICAL FINANCIAL DATA

On June 2, 2023, we effected a 1-for-10 reverse stock split of our common stock. The selected historical financial data presented below was derived from our historical financial statements that have been incorporated by reference into this prospectus, and gives effect to the reverse stock split for all periods presented.

Consolidated Statements of Operations Data

	Years Ended December 31,	
	2023	**2022**

Revenues	$ —	$ —
Costs and expenses:		
General and administrative costs:		
Compensation to related parties	1,718,180	2,547,615
Patent and licensing legal and filing fees and costs	978,244	1,268,308
Other costs and expenses	1,495,712	1,146,289
Research and development costs	898,100	1,349,269
Total costs and expenses	5,090,236	6,311,481
Loss from operations	(5,090,236)	(6,311,481)
Interest income	17,486	11,195
Interest expense	(16,233)	(8,875)
Foreign currency gain (loss)	1,954	(3,374)
Net loss	$ (5,087,029)	$ (6,312,535)
Net loss per common share – basic and diluted	$ (2.66)	$ (3.99)
Weighted average common shares outstanding – basic and diluted	1,915,838	1,582,029

Consolidated Balance Sheet Data

	December 31,	
	2023	**2022**
Total current assets	$ 4,308,620	$ 5,560,983
Total assets	$ 4,308,620	$ 5,560,983
Total current liabilities	$ 313,858	$ 395,756
Total liabilities	$ 313,858	$ 395,756
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 shares – 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 and 1,664,706 shares at December 31, 2023 and 2022, respectively	225	166
Additional paid-in capital	48,976,265	45,059,760
Accumulated deficit	(48,481,728)	(43,394,699)
Total stockholders' equity	$ 3,994,762	$ 5,165,227

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 September 30, 2024, there were 2,249,290 shares of common stock outstanding, which were held by 46 stockholders of record, and 350,000 shares of Series A Convertible Preferred Stock outstanding convertible into 72,917 shares of common stock.

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 a private placement offering to the institutional investor that was concurrent to as registered direct offering of our securities on July 20, 2023, the Company also sold Warrants to purchase 583,334 shares of common stock. Each Warrant had an initial exercise price of $6.00 per share, was immediately exercisable upon issuance, and expires five years thereafter on July 20, 2028. The Warrants and the shares of common stock issuable upon exercise of the Warrants were not registered under the Securities Act and were offered pursuant to the exemption provided in Section 4(a)(2) under the Securities Act and Rule 506(b) promulgated thereunder. The shares of common stock issuable upon exercise of the Common Warrants were registered for resale on a registration statement on Form S-3 declared effective by the SEC on May 2, 2024.

The registered direct offering and the concurrent private placement generated gross proceeds of $3,499,964. The total cash costs of the registered direct offering and the private placement were $362,925, resulting in net proceeds of $3,137,039. Pursuant to the placement agent agreement, the Company granted the placement agent Warrants to purchase 35,000 shares of common stock at an exercise price of $6.60 per share and expiring on July 20, 2028.

The exercise prices of the Warrants issued to the institutional investor (exercisable at $6.00 per share) and to the placement agent (exercisable at $6.60 per share) are subject to customary adjustments for stock splits, stock dividends, stock combinations, reclassifications, reorganizations, or similar events affecting the Company's common stock. In addition, the Warrants issued to the institutional investor contain a "fundamental transaction" provision which provides that if any defined fundamental transactions are within the Company's 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 the assets of the Company 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 the common equity of the Company.

If such fundamental transaction is not within the Company's control, including not being approved by the Company's 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 the Company's common stock receive. Accordingly, these Warrants are classified as a component of permanent stockholders' equity. The Company 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 required to be 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.

Transfer and Common Warrant Agent

The transfer agent and registrar for our common stock and the Warrant Agent for the Warrants is Computershare Trust Company, N.A.

Nasdaq Listing

Our common stock is currently listed on Nasdaq under the symbol "LIXT".

The Warrants issued in our November 2020 public offering are currently listed on Nasdaq under the symbol "LIXTW".

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".

Common Warrants

Overview. The following summary of certain terms and provisions of the Common Warrants offered hereby is not complete and is subject to, and qualified in its entirety by, the provisions of the Common Warrant agent agreement between us the Common Warrant Agent, and the form of Common Warrant which is filed as an exhibit to the registration statement of which this prospectus is a part. Each Common Warrant issued in this offering entitles the registered holder to purchase one share of our common stock at an exercise price equal to $[*] per share (equal to 110% of the public offering price of the Units), subject to adjustment as discussed below, immediately following the issuance of such Common Warrant, terminating at 5:00 p.m., New York City time, on the fifth anniversary of the original issuance date.

Exercisability. The Common Warrants are exercisable at any time after their original issuance date until the fifth anniversary of the original issuance date. The Common Warrants may be exercised upon surrender of the Common Warrant on or prior to the expiration date at the offices of the Common Warrant Agent, with the exercise form included with the Common Warrant completed and executed as indicated. If we fail to maintain the effectiveness of the registration statement and current prospectus relating to the common stock issuable upon exercise of the Common Warrants, the holders of the Common Warrants shall have the right to exercise the Common Warrants via a cashless exercise feature provided for in the Common Warrants, until such time as there is an effective registration statement and current prospectus. See "— Cashless Exercise" below.

Exercise Limitation. A holder (together with its affiliates) may not exercise any portion of the Common 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 common stock immediately after exercise, except that upon at least 61 days' prior notice from the holder to us, the holder may increase the amount of ownership of outstanding stock after exercising the holder's Common Warrants up to 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the Common Warrants.

Exercise Price. The exercise price per whole share of our common stock purchasable upon the exercise of the Common Warrants is $[*] (or 110% of the public offering price per Unit) per share of common stock. The Common Warrants will be immediately exercisable and may be exercised at any time up to the date that is the fifth anniversary of the original issuance date. The exercise price and number of shares of common stock issuable upon exercise of the Common Warrants may be adjusted in certain circumstances, including in the event of a stock dividend or recapitalization, reorganization, merger or consolidation. However, the Common Warrants will not be adjusted for issuances of common stock at prices below their exercise price.

Cashless Exercise. If, at any time after the issuance of the Common Warrants, a holder of the Common Warrants exercises the Common Warrants and a registration statement registering the issuance of the shares of common stock underlying the Common Warrants under the Securities Act is not then effective or available (or a prospectus is not available for the resale of shares of common stock underlying the Common Warrants), 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 shall instead receive upon such exercise (either in whole or in part) only the net number of shares of common stock determined according to a formula set forth in the Common Warrants.

Fractional Shares. No fractional shares of common stock will be issued upon exercise of the Common Warrants. If, upon exercise of the Common Warrant, a holder would be entitled to receive a fractional interest in a share, we will, in our discretion and upon exercise, 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.

Transferability. Subject to applicable laws, the Common Warrants may be offered for sale, sold, transferred or assigned at the option of the holder without our consent.

Exchange Listing. There is no established public trading market for the Common Warrants, and we do not expect a market to develop. In addition, we do not intend to list the Common Warrants on any securities exchange or nationally recognized trading system.

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

Rights as a Stockholder. Except by virtue of such holder's ownership of shares of our common stock, the holder of a Common Warrant does not have the rights or privileges of a holder of our common stock, including any voting rights, until the holder exercises the Common Warrant.

Pre-Funded Warrants

The terms of the Pre-Funded Warrants, if any, are identical to the terms of the Common Warrants, except that:

- the exercise price of the Pre-Funded Warrants is $0.01;
- the Pre-Funded Warrants may be exercised on a cashless basis at any time; and
- the term of the Pre-Funded Warrants does not expire.

PLAN OF DISTRIBUTION

We are offering on a reasonable best efforts basis up to 1,895,734 Units, based on an assumed public offering price of $2.11 per Unit, which represents the closing price of our common stock on Nasdaq on October 31, 2024, for gross proceeds of up to approximately $4,000,000, before deduction of placement agent fees and offering expenses. There is no minimum amount of proceeds that is a condition to closing of this offering. The actual amount of gross proceeds, if any, in this offering could vary substantially from the gross proceeds from the sale of the maximum amount of securities being offered in this prospectus.

Pursuant to a Placement Agency Agreement, dated as of October 8, 2024, we have engaged WallachBeth to act as our exclusive placement agent to solicit offers to purchase the securities offered by this prospectus. The placement agent is not purchasing or selling any securities, nor is it required to arrange for the purchase and sale of any specific number or dollar amount of securities, other than to use its "reasonable best efforts" to arrange for the sale of the securities by us. Therefore, we may not sell the entire amount of securities being offered. Investors purchasing securities offered hereby will have the option to execute a securities purchase agreement with us. In addition to the rights and remedies available to all investors in this offering under federal and state securities laws, the investors who enter into a securities purchase agreement will also be able to bring claims of breach of contract against us. Investors who do not enter into a securities purchase agreement shall rely solely on this prospectus in connection with the purchase of our securities in this offering. The placement agent may engage one or more subagents or selected dealers in connection with this offering.

The Placement Agency Agreement provides that the placement agent's obligations are subject to conditions contained in the Placement Agency Agreement.

The Units will be offered at a fixed price and are expected to be issued in a single closing. There is no minimum number of Units to be sold or minimum aggregate offering proceeds for this offering to close. We expect this offering to be completed not later than two business days following the commencement of this offering and we will deliver all securities issued in connection with this offering delivery versus payment ("DVP") receipt versus payment ("RVP") upon our receipt of investor funds. Accordingly, neither we nor the placement agent has made any arrangements to place investor funds in an escrow account or trust account since the placement agent will not receive investor funds in connection with the sale of securities offered hereunder. This offering will end no later than November 30, 2024, unless we decide to terminate the offering earlier (which we may do at any time at our discretion) prior to that date.

We will deliver the securities being issued to the investors upon receipt of investor funds for the purchase of the securities offered pursuant to this prospectus. We expect to deliver the securities being offered pursuant to this prospectus on or about November __, 2024.

Placement Agent Fees and Expenses

Upon the closing of this offering, we will pay the placement agent a cash transaction fee equal to 7.0% of the aggregate gross cash proceeds to us from the sale of the securities in the offering. In addition, we will reimburse the placement agent for certain of its out-of-pocket expenses incurred in connection with this offering, including the placement agent's legal fees, in an amount not to exceed $75,000 upon completion of this offering.

The following table shows the public offering price, placement agent fees and proceeds, before expenses, to us, assuming the sale of all Units in this offering and no sale of any Pre-Funded Warrants in this offering.

	Per Unit	Total
Public offering price	$	$
Placement agent fees		
Proceeds to us, before expenses	$	$

We estimate that the total expenses of the offering, including registration and filing fees, printing fees and legal and accounting expenses, but excluding the placement agent fees, will be approximately $225,000, all of which are payable by us. This figure includes, among other things, the placement agent's expenses of up to $75,000 (including its legal fees) that we have agreed to reimburse.

Placement Agent Common Warrants

We have also agreed to issue to WallachBeth (or its permitted assignees) Common Warrants (the "Placement Agent Common Warrants") to purchase a number of our shares of common stock equal to an aggregate of 3% of the total number of Units sold in this offering. The Placement Agent Common Warrants will have an exercise price equal to 110% of the public offering price per Unit. The Placement Agent Common Warrants are exercisable immediately after issuance and will expire five (5) years after the effective date of the registration statement. However, neither the Placement Agent Common Warrants nor the common stock underlying them will be transferable until one hundred eighty (180) days after the effective date of the registration statement of which this prospectus forms a part. The Placement Agent Common Warrants are not redeemable by us. We have agreed to a one-time demand registration of our shares of common stock underlying the Placement Agent Common Warrants at our expense for a period of five (5) years from the effective date of the registration statement related to this offering and an additional demand registration at the holders' expense for a period of five (5) years from the effective date of the registration statement related to this offering. The Placement Agent Common Warrants also provide for unlimited "piggyback" registration rights at our expense with respect to the underlying shares of common stock during the five-year period commencing from the effective date of the registration statement related to this offering. The Placement Agent Common Warrants and our shares of common stock underlying the Placement Agent Common Warrants have been deemed compensation by the Financial Industry Regulatory Authority, or FINRA, and are therefore subject to a 180-day lock-up pursuant to Rule 5110(g)(1) of FINRA. The placement agent (or permitted assignees under the Rule) may not sell, transfer, assign, pledge or hypothecate the Placement Agent Common Warrants or the securities underlying the Placement Agent Common Warrants, nor will they engage in any hedging, short sale, derivative, put or call transaction that would result in the effective economic disposition of the Placement Agent Common Warrants or the underlying securities for a period of six months from the effective date of this offering, except to any FINRA member participating in the offering and their bona fide officers or partners. The Placement Agent Common Warrants will provide for adjustment in the number and price of such Placement Agent Common Warrants (and our shares of common stock underlying such Placement Agent Common Warrants) to prevent dilution in the event of a forward or reverse stock split, stock dividend or similar recapitalization.

Right of First Refusal

We have agreed to grant WallachBeth, upon the closing of this offering for a period of three (3) months from the closing, a right of first refusal to participate in any of our future public and private equity and debt offerings.

Lock-Up Agreements

We have agreed for a period of ninety (90) days after this offering is completed and each of our officers and directors and executive officers have agreed for a period of forty-five (45) days after this offering is complete, subject to certain exceptions not to offer, issue, sell, contract to sell, encumber, grant any option for the sale of or otherwise dispose of any shares of our common stock or other securities convertible into or exercisable or exchangeable for our common stock for a period without the prior written consent of the placement agent, subject to certain exceptions.

The placement agent may in its sole discretion and at any time without notice release some or all of the shares subject to lock-up agreements prior to the expiration of the lock-up period. When determining whether or not to release shares from the lock-up agreements, the placement agent will consider, among other factors, the security holder's reasons for requesting the release, the number of shares for which the release is being requested and market conditions at the time.

Tail

Within ten (10) months following termination of our engagement agreement with WallachBeth, if we effect a sale of securities with a party introduced by WallachBeth for discussions on negotiations regarding an offering, WallachBeth shall be entitled to the compensation described above with respect to such transaction.

Indemnification

We have agreed to indemnify the placement agent against certain liabilities, including liabilities under the Securities Act, and to contribute to payments that the placement agent may be required to make for these liabilities.

Regulation M

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

Determination of Offering Price and Common Warrant Exercise Price

The actual public offering price of the securities we are offering, and the exercise price of the Common Warrants and the Pre-Funded Warrants included in the Units that we are offering, were negotiated between us, the placement agent and the investors in the offering based on the trading of our common stock prior to the offering, among other things. Other factors considered in determining the public offering price of the securities we are offering, as well as the exercise price of the Common Warrants that we are offering, include our history and prospects, the market price of our common stock on Nasdaq, the stage of development of our business, our business plans for the future and the extent to which they have been implemented, an assessment of our management, the general conditions of the securities markets at the time of the offering and such other factors as were deemed relevant.

Electronic Distribution

A prospectus in electronic format may be made available on a website maintained by the placement agent or an affiliate. Other than this prospectus, the information on the placement agent's website and any information contained in any other website maintained by the placement agent is not part of this prospectus or the registration statement of which this prospectus forms a part, has not been approved and/or endorsed by us or the placement agent, and should not be relied upon by investors. In connection with the offering, the placement agent or selected dealers may distribute prospectuses electronically. No forms of electronic prospectus other than prospectuses that are printable as Adobe® PDF will be used in connection with this offering.

Other than the prospectus in electronic format, the information on the placement agent's website and any information contained in any other website maintained by the placement agent is not part of the prospectus or the registration statement of which this prospectus forms a part, has not been approved and/or endorsed by us or the placement agent in its capacity as placement agent and should not be relied upon by investors.

Other Relationships and Affiliations

The placement agent and its affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. The placement agent and its affiliates may from time to time in the future engage with us and perform services for us or in the ordinary course of their business for which they will receive customary fees and expenses. In the ordinary course of their various business activities, the placement agent and its affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers, and such investment and securities activities may involve securities and/or instruments of us. The placement agent and its respective affiliates may also make investment recommendations and/or publish or express independent research views in respect of these securities or instruments and may at any time hold, or recommend to clients that they acquire, long and/or short positions in these securities and instruments.

Listing

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

Transfer Agent and Registrar

The transfer agent and registrar for our common stock 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, CA. Sichenzia, Ross, Ference, Carmel LLP, New York, NY, is acting as counsel to the placement agent.

EXPERTS

Weinberg & Company, P.A., our independent, registered public accounting firm, has audited our consolidated financial statements as of December 31, 2023 and 2022 and for the years then ended included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2023, which is incorporated by reference into this prospectus and elsewhere in the registration statement of which this prospectus is a part. Our 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, 2023, filed with the SEC on March 19, 2024;
- our Quarterly Report on Form 10-Q for the quarterly periods ended March 31, 2024 and June 30, 2024, filed with the SEC on May 9, 2024 and August 08, 2024, respectively;
- our Current Reports on Form 8-K filed with the SEC on January 30, 2024, February 26, 2024, February 27, 2024, March 22, 2024, March 28, 2024, May 9, 2024, May 20, 2024, May 29, 2024, June 5, 2024, June 14, 2024, June 14, 2024, July 11, 2024, July 12, 2024, August 19, 2024, August 23, 2024, August 26, 2024, September 5, 2024, and October 23, 2024; 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.

Up to 1,895,734 Units, each consisting of

One Share of Common Stock or One Pre-Funded Warrant to purchase One Share of Common Stock and One and One-Quarter Common Warrants to purchase One Share of Common Stock

Up to 1,895,734 Shares of Common Stock

Up to 1,895,734 Pre-Funded Warrants to purchase up to 1,895,734 Shares of Common Stock

Up to 2,369,667 Warrants to purchase Shares of Common Stock

Up to 2,369,667 Shares of Common Stock Underlying the Common Warrants

LIXTE BIOTECHNOLOGY HOLDINGS, INC.

PROSPECTUS

Sole Placement Agent

WallachBeth Capital LLC

November __, 2024

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 placement agent fees. All amounts shown are estimates except for the SEC registration fee and the FINRA filing fee.

SEC registration fee	$	1,454
FINRA fees		1,925
Transfer agent and registrar fees		2,000
Printing and engraving expenses		5,000
Accounting fees and expenses		50,000
Legal fees and expenses		75,000
Placement agent's expense allowance		75,000
Miscellaneous		14,621
Total	$	225,000

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: None

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
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 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 Common 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 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*
4.6	Form of Pre-Funded Warrant*
4.7	Form of Placement Agent Warrant*
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	Form of Placement Agency Agreement*
10.24	Form of Securities Purchase Agreement*
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)*
107*	Filing Fee Table

* Previously filed.

** 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 range 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 November 5, 2024.

Lixte Biotechnology Holdings, Inc.

By: */s/ Bastiaan van der Baan*
Name: Bastiaan van der Baan
Title: Chief Executive Officer and President
(Principal Executive Officer)

POWER OF ATTORNEY

Each person whose signature appears below appoints Bastiaan van der Baan 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	Date
/s/ Bastiaan van der Baan Bastiaan van der Baan	Chief Executive Officer, President, and Chairman of the Board of Directors (Principal Executive Officer)	November 5, 2024
/s/ Robert Weingarten Robert Weingarten	Chief Financial Officer (Principal Financial and Accounting Officer)	November 5, 2024
* Stephen Forman	Director	November 5, 2024

*	Director	November 5, 2024
Yun Yen		
*	Director	November 5, 2024
Rene Bernards		
*	Director	November 5, 2024
Regina Brown		

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

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Amendment No. 2 to the Registration Statement on Form S-1 (File No. 333-282781) of our report dated March 19, 2024, which includes an explanatory paragraph regarding substantial doubt about Lixte Biotechnology Holdings, Inc.'s ability to continue as a going concern, relating to the consolidated financial statements of Lixte Biotechnology Holdings, Inc., appearing in the Annual Report on Form 10-K of Lixte Biotechnology Holdings, Inc. for the fiscal year ended December 31, 2023, filed with the Securities and Exchange Commission. We also consent to the reference to our firm under the caption "Experts" in in the Prospectus, which is part of this Registration Statement.

/s/ Weinberg & Company, P.A.
Los Angeles, California
November 5, 2024