
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549**

FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

LIXTE BIOTECHNOLOGY HOLDINGS, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or Other Jurisdiction of
Incorporation or Organization)

20-2903526
(I.R.S. Employer
Identification Number)

680 East Colorado Boulevard, Suite 180
Pasadena, California 91101
(Address, including zip code, of Registrant's principal executive offices)

John Kovach, Chief Executive Officer
Lixte Biotechnology Holdings, Inc.
680 East Colorado Boulevard, Suite 180
Pasadena, California 91101
(631) 830-7092
(Name, address, including zip code, and telephone number, including area code, of agent for service)

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1801 Century Park East, Suite 1600
Los Angeles, California 90067
(310) 789-1290

Approximate date of commencement of proposed sale to the public: From time to time after this registration statement becomes effective.

If the only securities being registered on this form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

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, other than securities offered only in connection with dividend or interest reinvestment plans, please 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 registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this form is a post-effective amendment to a registration statement pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

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

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the 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. The selling stockholder 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 jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED AUGUST 11, 2023

Prospectus

583,334 Shares



Common Stock

Pursuant to this prospectus, the selling stockholder identified herein is offering on a resale basis 583,334 shares of our common stock, par value \$0.0001 per share, issuable upon exercise of certain common stock warrants (the "Warrants"). We issued the Warrants in an exempt private offering (the "Private Placement") pursuant to a securities purchase agreement, dated July 20, 2023 (the "Purchase Agreement") with the selling stockholder. We will not receive any of the proceeds from the sale by the selling stockholder of the common stock. However, upon exercise of the Warrants by payments of cash, we will receive the exercise price of the Warrants.

The selling stockholder may sell or otherwise dispose of the common stock covered by this prospectus in a number of different ways and at varying prices. We provide more information about how the selling stockholder may sell or otherwise dispose of the common stock covered by this prospectus in the section entitled "Plan of Distribution". Discounts, concessions, commissions and similar selling expenses attributable to the sale of common stock covered by this prospectus will be borne by the selling stockholder. We will pay all expenses (other than discounts, concessions, commissions and similar selling expenses) relating to the registration of the common stock with the Securities and Exchange Commission, or the SEC.

You should carefully read this prospectus and any accompanying prospectus supplement, together with the documents we incorporate by reference, before you invest in our common stock.

Our common stock is listed on The Nasdaq Capital Market under the symbol "LIXT." On August 10, 2023, the last reported sale price for our common stock was \$2.34 per share.

Investing in common stock involves risk. Please read carefully the section entitled "[Risk Factors](#)" beginning on page 2 of this prospectus.

Neither the Securities and Exchange Commission nor an 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.

The date of this prospectus is August 11, 2023.

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About This Prospectus

This prospectus is part of a registration statement that we filed with the SEC utilizing a "shelf" registration process. Under this shelf registration process, the selling stockholder may sell the securities described in this prospectus in one or more offerings. A prospectus supplement may add to, update or change the information contained in this prospectus. You should read this prospectus and any applicable prospectus supplement, together with the information incorporated herein by reference as described under the headings "Where You Can Find More Information" and "Information We Incorporate by Reference."

You should rely only on the information that we have provided or incorporated by reference in this prospectus and any applicable prospectus supplement. We have not authorized, nor has the selling stockholder authorized, any dealer, salesman or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus or any applicable prospectus supplement. You should not rely upon any information or representation not contained or incorporated

by reference in this prospectus or any accompanying prospectus supplement. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you.

This prospectus and any accompanying prospectus supplement do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor do this prospectus and any accompanying prospectus supplement constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. You should not assume that the information contained in this prospectus or any applicable prospectus supplement is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus or any applicable prospectus supplement is delivered or securities are sold on a later date.

References in this prospectus to the terms “we,” “us” or “the Company” or other similar terms mean Lixte Biotechnology Holdings, Inc. and its consolidated subsidiary, unless we state otherwise or the context indicates otherwise.

Summary

This summary highlights certain information appearing elsewhere in this prospectus and in the documents we incorporate by reference into this prospectus. The summary is not complete and does not contain all of the information that you should consider before investing in our common stock. After you read this summary, you should read and consider carefully the entire prospectus and any prospectus supplement and the more detailed information and financial statements and related notes that are incorporated by reference into this prospectus supplement. If you invest in our shares, you are assuming a high degree of risk.

Company Overview

The Company is a drug discovery company that uses biomarker technology to identify enzyme targets associated with serious common diseases and then designs novel compounds to attack those targets. The Company’s corporate office is located in Pasadena, California.

The Company’s product pipeline is primarily focused on inhibitors of protein phosphatases, used alone and in combination with cytotoxic agents and/or x-ray and immune checkpoint blockers. The Company believes that inhibitors of protein phosphatases have broad therapeutic potential not only for cancer but also for other debilitating and life-threatening diseases. The Company is directing its efforts on clinical development of a specific protein phosphatase inhibitor, referred to as LB-100, which has been shown to have clinical anti-cancer activity at doses that produce little or no toxicity.

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

Corporate Information

We are incorporated in Delaware, and our principal place of business is located at 680 East Colorado Boulevard, Suite 180, Pasadena, California 91101. Our telephone number is (631) 830-7092. Our corporate website address is www.lixte.com. Information contained on or accessible through our website is not a part of this prospectus, and the inclusion of our website address in this prospectus is an inactive textual reference only.

Our common stock and warrants trade on The Nasdaq Capital Market under the symbols “LIXT” and “LIXTW”, respectively.

Our principal Internet address is www.lixte.com. Information contained on, or that can be accessed through, our website, is not, and shall not be deemed to be, incorporated in this prospectus or considered a part thereof. We make available free of charge on www.lixte.com our annual, quarterly and current reports, and amendments to those reports, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC at <http://www.sec.gov>.

Private Placement

On July 20, 2023, we entered into a securities purchase agreement (the “Purchase Agreement”), with the selling stockholder pursuant to which we agreed to issue and sell warrants (the “Warrants”) to purchase up to an aggregate of 583,334 shares of common stock. The Warrants are exercisable beginning the date of issuance at a price per share of \$6.00 and will expire five years thereafter.

Pursuant to the Purchase Agreement, the Company agreed to file a registration statement on Form S-3 for the resale by the selling stockholder of the shares of common stock issuable upon exercise of the Warrants.

We are filing the registration statement of which this prospectus forms a part to satisfy our obligations under the Purchase Agreement.

Risk Factors

Investing in our common stock involves risk. Prior to making a decision about investing in our common stock, you should carefully consider the risk factors discussed under the heading “Risk Factors” in our most recent Annual Report on Form 10-K, which is incorporated herein by reference and may be amended, supplemented or superseded from time to time by other reports we file with the SEC in the future. If any of these risks actually occurs, our business, results of operations and financial condition could suffer. In that case, the trading price of our common stock could decline, and you could lose all or a part of your investment.

Cautionary Note Regarding Forward-Looking Statements

This prospectus, any accompanying prospectus supplement, and the documents incorporated by reference herein and therein may contain forward looking statements that involve risks and uncertainties. All statements other than statements of historical fact contained in this prospectus, any accompanying prospectus supplement and the documents incorporated by reference herein and therein, including statements regarding future events, our future financial performance, business strategy, and plans and objectives of management for future operations, are forward-looking statements. We have attempted to identify forward-looking statements by terminology including “anticipates,” “believes,” “can,” “continue,” “could,” “estimates,” “expects,” “intends,” “may,” “plans,” “potential,” “predicts,” “should,” or “will” or the negative of these terms or other comparable terminology. Although we do not make forward looking statements unless we believe we have a reasonable basis for doing so, we cannot guarantee their accuracy. These statements are only predictions and involve known and unknown risks, uncertainties and other factors, including the risks outlined under “Risk Factors” or elsewhere in this prospectus, the any accompanying prospectus supplement and the documents incorporated by reference herein and therein, which may cause our or our industry’s actual results, levels of activity, performance or achievements expressed or implied by these forward-looking statements. Moreover, we operate in a highly regulated, very competitive, and rapidly changing environment. New risks emerge from time to time and it is not possible for us to predict all risk factors, nor can we address the impact of all factors on our

business or the extent to which any factor, or combination of factors, may cause our actual results to differ materially from those contained in any forward-looking statements.

We have based these forward-looking statements largely on our current expectations and projections 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 financial needs. These forward-looking statements are subject to certain risks and uncertainties that could cause our actual results to differ materially from those reflected in the forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those discussed (i) in our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, (ii) in this prospectus and (iii) in other documents we file with the SEC. The following discussion should be read in conjunction with the consolidated financial statements for the fiscal years ended December 31, 2022 and 2021 and the notes incorporated by reference herein. We undertake no obligation to revise or publicly release the results of any revision to these forward-looking statements, except as required by law. 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 statement.

You should not place undue reliance on any forward-looking statement, each of which applies only as of the date of this prospectus. You are advised to consult any further disclosures we make on related subjects in our reports on Forms 10-Q, 8-K and 10-K filed with the SEC.

Use of Proceeds

We will not receive any of the proceeds from any sale or other disposition of the common stock covered by this prospectus. All proceeds from the sale of the common stock will be paid directly to the selling stockholder. However, we will receive proceeds upon the cash exercise of the Warrants. Assuming full cash exercise of the Warrants, we would receive approximately \$3.5 million. We currently intend to use any cash proceeds from a Warrant exercise for working capital and continuing operating expenses, including, without limitation, for further clinical development of our lead compound LB-100.

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Description of Capital Stock

Common Stock

We are authorized to issue up to a total of 100,000,000 shares of common stock, par value \$0.0001 per share. Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of our stockholders. Holders of our common stock have no cumulative voting rights.

Further, holders of our common stock have no pre-emptive or conversion rights or other subscription rights. Upon our liquidation, dissolution or winding-up, holders of our common stock are entitled to share in all assets remaining after payment of all liabilities and the liquidation preferences of any of our outstanding shares of preferred stock. Subject to preferences that may be applicable to any outstanding shares of preferred stock, holders of our common stock are entitled to receive dividends, if any, as may be declared from time to time by our board of directors out of our assets which are legally available. Each outstanding share of our common stock is, and all shares of common stock to be issued in this offering when they are paid for will be, fully paid and non-assessable.

The holders of a majority of the shares of our capital stock, represented in person or by proxy, are necessary to constitute a quorum for the transaction of business at any meeting. If a quorum is present, an action by stockholders entitled to vote on a matter is approved if the number of votes cast in favor of the action exceeds the number of votes cast in opposition to the action, with the exception of the election of directors, which requires a plurality of the votes cast.

Preferred Stock

Our Board of Directors will have the authority, without further action by the stockholders, to issue up to 10,000,000 shares of preferred stock in one or more series and to fix the designations, powers, preferences, privileges, and relative participating, optional, or special rights as well as the qualifications, limitations, or restrictions of the preferred stock, including dividend rights, conversion rights, voting rights, terms of redemption, and liquidation preferences, any or all of which may be greater than the rights of the common stock. Our board of directors, without stockholder approval, will be able to issue convertible preferred stock with voting, conversion, or other rights that could adversely affect the voting power and other rights of the holders of common stock. Preferred stock could be issued quickly with terms calculated to delay or prevent a change of control or make removal of management more difficult. Additionally, the issuance of preferred stock may have the effect of decreasing the market price of our common stock, and may adversely affect the voting and other rights of the holders of common stock. At present, we have no plans to issue any shares of preferred stock following this offering.

We have designated a total of 350,000 shares as our Series A Convertible Preferred Stock which are non-voting and not subject to increase without the written consent of a majority of the holders of such series. The holders of each tranche of 175,000 shares are entitled to receive a per share dividend equal to 1% of our annual net revenue divided by 175,000, until converted or redeemed. Each share of Series A Convertible Preferred Stock may be converted, at the option of the holder, into 0.20833 shares of common stock (subject to customary anti-dilution provisions), and as subject to mandatory conversions at the conversion rate in the event of a merger or sale transaction resulting in gross proceeds to us of at least \$21,875,000. Each share has a liquidation preference based on its assumed conversion into shares of common stock.

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Our board of directors will fix the designations, voting powers, rights, preferences and privileges of each series, as well as the qualifications, limitations or restrictions thereof, of the Preferred Stock of each series that we offer under this prospectus and applicable prospectus supplements in the certificate of designation relating to that series. We will file as an exhibit to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, the form of any certificate of designation that describes the terms of the series of Preferred Stock we are offering before the issuance of that series of Preferred Stock. This description will include:

- the title and stated value;
- the number of shares being offered;
- the liquidation preference per share;
- the purchase price per share;
- the dividend rate per share, dividend period and payment dates and method of calculation for dividends;
- whether dividends will be cumulative or non-cumulative and, if cumulative, the date from which dividends will accumulate;
- our right, if any, to defer payment of dividends and the maximum length of any such deferral period;
- the procedures for any auction and remarketing, if any;
- the provisions for a sinking fund, if any;

- the provisions for redemption or repurchase, if applicable, and any restrictions on our ability to exercise those redemption and repurchase rights;
- any listing of the Preferred Stock on any securities exchange or market;
- whether the Preferred Stock will be convertible into Common Stock, and the conversion rate or conversion price, or how they will be calculated, and the exchange period;
- voting rights, if any, of the Preferred Stock;
- preemption rights, if any;
- restrictions on transfer, sale or other assignment, if any;
- a discussion of any material or special United States federal income tax considerations applicable to the Preferred Stock;
- the relative ranking and preferences of the Preferred Stock as to dividend rights and rights if we liquidate, dissolve or wind up our affairs;
- the limitations on issuances of any class or series of Preferred Stock ranking senior to or on a parity with the series of Preferred Stock being issued as to dividend rights and rights if we liquidate, dissolve or wind up our affairs; and
- any other specific terms, rights, preferences, privileges, qualifications or restrictions of the Preferred Stock.

Upon issuance, the shares of Preferred Stock will be fully paid and non-assessable.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Computershare, Inc.

NASDAQ Capital Market

Our common stock is listed on The NASDAQ Capital Market under the symbol “LIXT.”

Private Placement of Warrants

On July 20, 2023, we entered into a securities purchase agreement (the “Purchase Agreement”), with the selling stockholder pursuant to which we agreed to issue and sell warrants (the “Warrants”) to purchase up to an aggregate of 583,334 shares of common stock. The Warrants are exercisable beginning the date of issuance at a price per share of \$6.00 and will expire five years thereafter.

Pursuant to the Purchase Agreement, the Company agreed to file a registration statement on Form S-3 for the resale by the selling stockholder of the shares of common stock issuable upon exercise of the Warrants.

We are filing the registration statement of which this prospectus forms a part to satisfy our obligations under the Purchase Agreement.

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Selling Stockholder

The common stock being offered by the selling stockholder are those issuable to the selling stockholder upon exercise of the Warrants. For additional information regarding the issuance of those Warrants, see “Private Placement of Warrants” above. We are registering the shares of common stock in order to permit the selling stockholder to offer the shares for resale from time to time. Except for the beneficial ownership of securities of the Company, including the Warrants, neither the selling stockholder nor any persons who have control over the selling stockholder has had any material relationship with us within the past three years.

The table below lists the selling stockholder and other information regarding the beneficial ownership (as determined under Section 13(d) of the Exchange Act) of the shares of Common Stock by the selling stockholder. The second column lists the number of shares of Common Stock beneficially owned by the selling stockholder, based on its ownership of the shares of Common Stock, options to purchase Common Stock, and warrants to purchase Common Stock, as of August 10, 2023, assuming exercise in full of the Warrants held by the selling stockholder on that date, without regard to any limitations on exercises. The third column lists the maximum number of shares of Common Stock that may be sold or otherwise disposed of by the selling stockholder pursuant to the registration statement of which this prospectus forms a part. The selling stockholder may sell or otherwise dispose of some, all or none of its shares. The fourth column assumes the sale of all of the shares of Common Stock offered by the selling stockholder pursuant to this prospectus, without regard to any limitations on exercises.

Under the terms of the Warrants, the selling stockholder may not exercise the Warrants to the extent such exercise would cause the selling stockholder, together with its affiliates and attribution parties, to beneficially own a number of shares of common stock which would exceed 4.99% or 9.99%, as applicable, of our then outstanding common stock following such exercise, excluding for purposes of such determination the shares of common stock issuable upon exercise of the Warrants which have not been exercised. The number of shares of common stock owned prior to the offering in the second column and the number of shares of common stock owned after the offering in the fourth column do not reflect this limitation. The selling stockholder may sell all, some or none of their shares in this offering. See “Plan of Distribution.”

Name of Selling Stockholder	Number of Shares of Common Stock Owned Prior to Offering ⁽³⁾	Maximum Number of Shares of Common Stock to be Sold Pursuant to this Prospectus	Shares Owned Immediately After Sale of Maximum Number of Shares in this Offering	
			Number	Percentage of Outstanding Common Stock ⁽²⁾
Armistice Capital Master Fund Ltd. ⁽¹⁾	1,166,668	583,334	583,334	25.93%
Total	1,166,668	583,334	583,334	25.93%

(1) The securities are directly held by Armistice Capital Master Fund Ltd., a Cayman Islands exempted company (the “Master Fund”), and may be deemed to be beneficially owned by: (i) Armistice Capital, LLC (“Armistice Capital”), as the investment manager of the Master Fund; and (ii) Steven Boyd, as the Managing Member of Armistice Capital. The Warrants are subject to a beneficial ownership limitation of 4.99%, which such limitation restricts the selling stockholder from exercising that portion of the Warrants that would result in the Selling Stockholder and its affiliates owning, after exercise, a number of shares of common stock in excess of the beneficial ownership

limitation. The address of Armistice Capital Master Fund Ltd. is c/o Armistice Capital, LLC, 510 Madison Avenue, 7th Floor, New York, NY 10022.

(2) Percentages are based on 2,249,290 shares of common stock outstanding on August 10, 2023.

(3) Consists of an aggregate of 1,166,668 shares of common stock beneficially owned and is comprised of (i) 180,000 shares of common stock; (ii) 403,334 shares of common stock issuable upon the exercise of the Pre-Funded Warrants; and (iii) 583,334 shares of common stock issuable upon the exercise of the Warrants.

Plan of Distribution

The selling stockholder and any of its pledges, assignees and successors-in-interest may from time to time, sell any or all of their shares of common stock covered hereby on The Nasdaq Capital Market or any other stock exchange, market or trading facility on which the common stock is traded or in private transactions. These sales may be at fixed or negotiated prices. The selling stockholder may use any one or more of the following methods when selling shares of common stock:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- settlement of short sales;
- in transactions through broker-dealers that agree with the selling stockholder to sell a specified number of shares of common stock at a stipulated price per share;
- through the written settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- a combination of any such methods of sale; or
- any other method permitted pursuant to applicable law.

The selling stockholder may also sell shares of common stock under Rule 144 or any other exemption from registration under the Securities Act, if available, rather than under this prospectus.

Broker-dealers engaged by the selling stockholder may arrange for other brokers-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the selling stockholder (or, if any broker-dealer acts as agent for the purchaser of shares of common stock, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplement to this prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with Rule 2121 of the Financial Industry Regulatory Authority, or FINRA; and in the case of a principal transaction, a markup or markdown in compliance with FINRA Rule 2121.

In connection with the sale of the shares of common stock covered by this prospectus or interests therein, the selling stockholder may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the shares of common stock in the course of hedging the positions they assume. The selling stockholder may also sell shares of common stock short and deliver these shares to close out their short positions, or loan or pledge the shares to broker-dealers that in turn may sell these shares. The selling stockholder may also enter into option or other transactions with broker-dealers or other financial institutions or create one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares of common stock covered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The selling stockholder and any broker-dealers or agents that are involved in selling the shares of common stock covered hereby may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the shares purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. Each selling stockholder has informed the Company that it does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the shares of common stock.

The Company is required to pay certain fees and expenses incurred by the Company incident to the registration of the shares of common stock covered hereby. The Company has agreed to indemnify the selling stockholder against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

We agreed to keep the registration statement of which this prospectus forms a part effective until the selling stockholder does not own any Warrants or common stock issuable upon exercise thereof. The shares of common stock will be sold only through registered or licensed brokers or dealers if required under applicable state securities laws. In addition, in certain states, the shares of common stock covered hereby may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

Under applicable rules and regulations under the Securities Exchange Act of 1934, or the Exchange Act, any person engaged in the distribution of the shares of common stock covered hereby may not simultaneously engage in market making activities with respect to the common stock for the applicable restricted period, as defined in Regulation M, prior to the commencement of the distribution. In addition, the selling stockholder will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including Regulation M, which may limit the timing of purchases and sales of the common stock by the selling stockholder or any other person. We will make copies of this prospectus available to the selling stockholder and have informed it of the need to deliver a copy of this prospectus to each purchaser at or prior to the time of the sale (including by compliance with Rule 172 under the Securities Act).

Legal Matters

The validity of the shares of common stock offered hereby will be passed upon for us by TroyGould PC, Los Angeles, California.

Experts

Weinberg & Company, P.A., an independent registered public accounting firm, audited our consolidated financial statements included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2023, as set forth in their report, which includes an explanatory paragraph as to the Company’s ability to continue as a going concern, dated March 29, 2023, which is incorporated by reference in this prospectus and elsewhere in the registration statement. Our consolidated financial statements are incorporated by reference in reliance on Weinberg & Company, P.A.’s report, given on the authority of such firm as experts in accounting and auditing.

Where You Can Find More Information

We file annual, quarterly and current reports, proxy statements and other information with the SEC, which are available at the SEC's website at <http://www.sec.gov>. In addition, we maintain a website that contains information about us at <http://www.lixte.com>. The information found on, or otherwise accessible through, our website is not incorporated into, and does not form a part of, this prospectus supplement or any other report or document we file with or furnish to the SEC.

We have filed with the SEC a registration statement on Form S-3 (File No. 333-252430) under the Securities Act with respect to the shares of common stock offered by this prospectus supplement. When used in this prospectus supplement, the term "registration statement" includes amendments to the registration statement as well as the exhibits, schedules, financial statements and notes filed as part of the registration statement or incorporated by reference therein. This prospectus supplement, which constitutes a part of the registration statement, omits some information contained in the registration statement in accordance with SEC rules and regulations. You should review the information and exhibits in the registration statement for further information on us and our consolidated subsidiaries and the common stock we are offering by this prospectus supplement. Statements herein concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to these filings. You should review the complete document to evaluate these statements. You can obtain a copy of the registration statement from the SEC at the address listed above or from the SEC's website.

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Information We Incorporate By Reference

The SEC allows us to "incorporate by reference" into this prospectus the information in documents we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be a part of this prospectus, and information that we file later with the SEC will automatically update and supersede this information. Any statement contained in any document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in or omitted from this prospectus or any accompanying prospectus supplement, or in any other subsequently filed document, which also is or is deemed to be incorporated by reference herein, modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

We incorporate by reference the documents listed below and any future documents that we file with the SEC (excluding any portion of such documents that are furnished and not filed with the SEC) under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (1) after the date of the initial filing of the registration statement of which this prospectus forms a part prior to the effectiveness of the registration statement and (2) after the date of this prospectus until the offering of the securities is terminated:

- Current Reports on Form 8-K, filed with the SEC on [April 5, 2023](#), [April 25, 2023](#), [May 10, 2023](#), [May 30, 2023](#), [June 6, 2023](#), [June 26, 2023](#), [July 20, 2023](#) and [July 21, 2023](#);
- Quarterly Reports on Form 10-Q, filed with the SEC on [May 10, 2023](#), and [August 9, 2023](#);
- Our Annual Report on [Form 10-K](#), filed with the SEC on March 29, 2023.

We will not, however, incorporate by reference in this prospectus any documents or portions thereof that are not deemed "filed" with the SEC, including any information furnished pursuant to Item 2.02 or Item 7.01 of our current reports on Form 8-K unless, and except to the extent, specified in such current reports.

We will provide you with a copy of any of these filings (other than an exhibit to these filings, unless the exhibit is specifically incorporated by reference into the filing requested) at no cost, if you submit a request to us by writing or telephoning us at the following address and telephone number:

Lixte Biotechnology Holdings, Inc.
680 East Colorado Boulevard, Suite 180
Pasadena, California 91101
(631) 830-7092
Attn: Secretary

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PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The following are the estimated expenses of the issuance and distribution of the securities being registered, all of which are payable by us. All of the items below, except for the registration fee, are estimates.

Securities and Exchange Commission ("SEC" or "Commission") registration fee	\$	177.10
Legal fees and expenses		30,000.00
Accountant's fees and expenses		3,000.00
Miscellaneous		1,000.00
Total	\$	<u>34,177.10</u>

Item 15. Indemnification of Directors and Officers.

Delaware law provides that directors of a company will not be personally liable for monetary damages for breach of their fiduciary duty as directors, except for liabilities:

- for any breach of their duty of loyalty to the company or its stockholders;
- for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law;
- for unlawful payment of dividend or unlawful stock repurchase or redemption, as provided under Section 174 of the General Corporation Law of the State of Delaware (the "DGCL"); or
- for any transaction from which the director derived an improper personal benefit.

The provisions of Delaware law that relate to indemnification expressly state that the rights provided by the statute are not exclusive and are in addition to any rights provided in bylaws, by agreement, or otherwise. Our Certificate of Incorporation provides that we are authorized to indemnify our directors and officers to the fullest extent permitted by Delaware law. Our Amended and Restated Bylaws provide that we are required to indemnify our directors and executive officers to the fullest extent permitted by Delaware law. Our Amended and Restated Bylaws also provide that, upon satisfaction of certain conditions, we are required to advance expenses incurred by a director or executive officer in advance of the final disposition of any action or proceeding, and permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in that capacity regardless of whether we would otherwise be permitted to indemnify him or her under the provisions of Delaware law. Our Amended and Restated Bylaws also provide our Board of Directors with discretion to indemnify our other officers and employees when determined appropriate by our Board of Directors. We have entered into agreements to indemnify our directors, executive officers and other employees as determined by the Board of Directors. With certain exceptions, these agreements provide for indemnification for related expenses, including, among other things, attorneys' fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or proceeding. We believe that these provisions and agreements are necessary to attract and retain qualified persons as directors and officers. We have obtained customary directors' and officers' liability insurance.

II

Item 16. Exhibits.

The following documents are exhibits to the registration statement:

Exhibit Number	Description
3.1	Certificate of Incorporation, as filed with the Delaware Secretary of State on May 24, 2005¹
3.2	Certificate of Amendment of Certificate of Incorporation²
3.3	Certificate of Designations for the Company's Series A Convertible Preferred Stock³
3.4	Certificate of Amendment of Certificate of Designations of the Series A Convertible Preferred Stock⁴
3.6	Amended and Restated Bylaws⁵
3.7	Certificate of Amendment of Certificate of Incorporation⁶
4.1	Form of Common Stock Purchase Warrant⁷
5.1	Opinion of TroyGould PC.
10.1	Securities Purchase Agreement⁸
23.1	Consent of TroyGould PC (Included in Exhibit 5.1 to this Registration Statement).
23.2	Consent of Weinberg & Company, P.A.
24.1	Power of Attorney.
107	Filing Fee Table.

- (1) Incorporated by reference to Exhibit 3.1 to our Annual Report on Form 10-K, filed with the Securities and Exchange Commission on March 29, 2023.
- (2) Incorporated by reference to Exhibit 3.2 to our Annual Report on Form 10-K, filed with the Securities and Exchange Commission on March 29, 2023.
- (3) Incorporated by reference to Exhibit 3.3 to our Annual Report on Form 10-K, filed with the Securities and Exchange Commission on March 29, 2023.
- (4) Incorporated by reference to Exhibit 3.4 to our Annual Report on Form 10-K, filed with the Securities and Exchange Commission on March 29, 2023.
- (5) Incorporated by reference to Exhibit 3.6 to our Annual Report on Form 10-K, filed with the Securities and Exchange Commission on March 29, 2023.
- (6) Incorporated by reference to Exhibit 3.7 to our Annual Report on Form 10-K, filed with the Securities and Exchange Commission on March 29, 2023.
- (7) Incorporated by reference to Exhibit 4.1 to our Current Report on Form 8-K, as filed with the Securities and Exchange Commission on July 20, 2023.
- (8) Incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K, as filed with the Securities and Exchange Commission on July 20, 2023.

Item 17. Undertakings.

The undersigned registrant hereby undertakes:

- To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - To include any prospectus required by Section 10(a)(3) of the Securities Act;
 - To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Filing Fee Tables" filed as an exhibit to the effective registration statement; and
 - 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;

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provided, however, that the undertakings set forth in paragraphs (1)(i), (1)(ii) and (1)(iii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or Section 15(d) of the Exchange Act that are incorporated by reference in this registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of this registration statement.

- That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- 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.

- That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(A) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is a part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in this 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.

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 Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

IV

SIGNATURES

Pursuant to the requirements of the Securities Act, Lixte Biotechnology Holdings, Inc. certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and 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 August 11, 2023.

Lixte Biotechnology Holdings, Inc.

By: /s/ John Kovach
 Name: John Kovach
 Title: Chief Executive Officer
 (Principal Executive Officer)

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each individual whose signature appears below hereby constitutes and appoints each of John Kovach and Eric Forman, acting singly, his true and lawful agent, proxy and attorney-in-fact, with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to (i) act on, sign and file with the Securities and Exchange Commission any and all amendments (including post-effective amendments) to this registration statement together with all schedules and exhibits thereto and any subsequent registration statement filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended, together with all schedules and exhibits thereto, (ii) act on, sign and file such certificates, instruments, agreements and other documents as may be necessary or appropriate in connection therewith, (iii) act on and file any supplement to any prospectus included in this registration statement or any such amendment or any subsequent registration statement filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended, and (iv) take any and all actions which may be necessary or appropriate in connection therewith, granting unto such agents, proxies and attorneys-in-fact, and each of them, full power and authority to do and perform each and every act and thing necessary or appropriate to be done, as fully for all intents and purposes as he might or could do in person, hereby approving, ratifying and confirming all that such agents, proxies and attorneys-in-fact or any of their substitutes may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement and Power of Attorney have been signed on August 11, 2023, by the following persons in the capacities indicated.

Signature	Title	Date
<u>/s/ John Kovach</u> John Kovach	Chief Executive Officer; Director (Principal Executive Officer)	August 11, 2023
<u>/s/ Robert Weingarten</u> Robert Weingarten	Chief Financial Officer (Principal Accounting Officer)	August 11, 2023
<u>/s/ Stephen Forman</u> Stephen Forman	Director	August 11, 2023
<u>/s/ Yun Yen</u> Yun Yen	Director	August 11, 2023
<u>/s/ Regina Brown</u> Regina Brown	Director	August 11, 2023
<u>/s/ Rene Bernards</u> Rene Bernards	Director	August 11, 2023
<u>/s/ Bastiaan van der Baan</u> Bastiaan van der Baan	Director	August 11, 2023



TroyGould PC
1801 Century Park East, 16th Floor
Los Angeles, California 90067

August 11, 2023

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

Re: Registration Statement on Form S-3

Dear Ladies and Gentlemen:

This opinion is furnished to you in connection with a Registration Statement on Form S-3 (the "Registration Statement") filed by Lixte Biotechnology Holdings, Inc., a Delaware corporation (the "Company"), with the U.S. Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), including a related prospectus included in the Registration Statement (the "Prospectus"), for the proposed offering (the "Offering") by the selling stockholder named therein (the "Selling Stockholder"), on a resale basis, of 583,334 shares of the Company's common stock (the "Warrant Shares"), issuable upon the exercise of Common Stock Warrants (the "Warrants"). The Warrants were issued pursuant to a Securities Purchase Agreement, dated July 20, 2023, between the Company and the Selling Stockholder.

We have acted as counsel for the Company in connection with the Registration Statement. For purposes of this opinion letter, we have examined and relied upon the Registration Statement, the Prospectus and such other documents, records, certificates and other instruments as we have deemed necessary or appropriate.

Our opinions herein are expressed solely with respect to the federal laws of the United States and the Delaware General Corporation Law.

We express no opinion that at the time of any sale of any Warrant Shares, there will be sufficient shares of the Company's common stock authorized and unissued under the Company's Certificate of Incorporation and not otherwise reserved for issuance.

Based upon and subject to the foregoing, we are of the opinion that the Warrant Shares proposed to be sold by the selling stockholder have been duly authorized and, if and when issued against payment therefore in accordance with the terms of the Warrants, will be validly issued, fully paid and non-assessable.

We hereby consent to your filing of this opinion letter as an exhibit to the Registration Statement and to the use of our name under the caption "Legal Matters" in the Prospectus. Our consent shall not be deemed an admission that we are experts whose consent is required under Section 7 of the Securities Act, or the rules and regulations of the Commission thereunder.

This opinion letter may be used only in connection with the offer and sale of the Warrant Shares while the Registration Statement remains effective.

Very truly yours,

/s/ TROYGOULD PC

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement on Form S-3 of our report dated March 29, 2023, with respect to the consolidated financial statements of Lixte Biotechnology Holdings, Inc. as of December 31, 2022, and for the year ended then ended (which report includes an explanatory paragraph relating to substantial doubt about the Company's ability to continue as a going concern) appearing in the Annual Report on Form 10-K of Lixte Biotechnology Holdings, Inc. for the year ended December 31, 2022. We also consent to the reference to our firm under the caption "Experts" in such Registration Statement.

/s/ Weinberg & Company, P.A.
Los Angeles, California
August 11, 2023

Calculation of Filing Fee Tables

Form S-3
(Form Type)

Lixte Biotechnology Holdings, Inc.
(Exact Name of Registrant as Specified in its Charter)

Table 1 - Newly Registered

<u>Security Type</u>	<u>Security Class Title</u>	<u>Fee Calculation Rule</u>	<u>Amount Registered (1)</u>	<u>Proposed Maximum Offering Price Per Unit</u>	<u>Maximum Aggregate Offering Price</u>	<u>Fee Rate</u>	<u>Amount of Registration Fee</u>
Equity	Common Stock, par value \$0.0001 per share	Other	583,334 ⁽²⁾	\$ 2.755 ⁽³⁾	\$ 1,607,085.17 ⁽³⁾	0.00011020	\$ 177.10
Total Offering Amounts					\$ 1,607,085.17		\$ 177.10
Total Fee Offsets							—
Net Fee Due							\$ 177.10

(1) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the “Securities Act”), the shares of common stock being registered hereunder include such indeterminate number of shares as may be issuable as a result of stock splits, stock dividends or similar transactions.

(2) Represents shares of common stock issuable upon exercise of certain warrants, to be held by certain of the selling stockholder identified herein.

(3) Estimated solely for the purpose of calculating the registration fee and is based on the average of the high and low sales prices of the registrant’s common stock of \$2.755 per share as of August 9, 2023 as reported on The Nasdaq Capital Market, pursuant to Rule 457(c) under the Securities Act.