

PROSPECTUS

Filed Pursuant to Rule 424(b)(3)  
Registration No. 333-271950

## KIROMIC BIOPHARMA, INC.

### Up to 1,302,083 Shares of Common Stock

This prospectus relates to the resale from time to time of up to 1,302,083 shares of common stock, par value \$0.001 per share (the “Common Stock”), of Kiromic Biopharma, Inc., a Delaware corporation (“Kiromic”), by YA II PN, LTD, a Cayman Island limited partnership (the “Selling Securityholder”). The shares included in this prospectus consist of shares of Common Stock that we have issued or that we may, in our discretion, elect to issue and sell to the Selling Securityholder, from time to time after the date of this prospectus, pursuant to a standby equity purchase agreement we entered into with the Selling Securityholder on October 13, 2022 (the “YA Purchase Agreement”), in which the Selling Securityholder has committed to purchase from us, at our direction, up to \$5,000,000 of our Common Stock, subject to terms and conditions specified in the YA Purchase Agreement, subject to increase by an additional \$3,000,000 of Common Stock at the Company’s election (the “Commitment Increase”). As consideration for the Selling Securityholder’s irrevocable commitment to purchase shares of our Common Stock at our election and in our discretion from time to time after the date of this prospectus and prior to the first day of the month next following the 36-month anniversary of the date on which this registration statement has been declared effective by the Securities and Exchange Commission, upon the terms and subject to the satisfaction of the conditions set forth in the YA Purchase Agreement, we have agreed to issue to the Selling Securityholder 20,111 shares of Common Stock pursuant to the terms of the YA Purchase Agreement (the “Commitment Shares”). See the section of this prospectus entitled “*Committed Equity Financing*” for a description of the YA Purchase Agreement and the section entitled “*Selling Securityholder*” for additional information regarding the Selling Securityholder.

Our registration of the securities covered by this prospectus does not mean that the Selling Securityholder will offer or sell any of the shares of Common Stock. The Selling Securityholder may offer, sell, or distribute all or a portion of its shares of Common Stock publicly or through private transactions at prevailing market prices or at negotiated prices. We will not receive any proceeds from the sale of shares of Common Stock by the Selling Securityholder pursuant to this prospectus. However, we may receive up to \$5,000,000 in aggregate gross proceeds from sales of our Common Stock to the Selling Securityholder that we may, in our discretion, elect to make, from time to time after the date of this prospectus, pursuant to the YA Purchase Agreement. We provide more information about how the Selling Securityholder may sell or otherwise dispose of the shares of our Common Stock in the section entitled “*Plan of Distribution*.” We will bear all costs, expenses and fees in connection with the registration of the shares of Common Stock offered hereby. The Selling Securityholder will bear all commissions and discounts, if any, attributable to its sales of the shares of Common Stock offered hereby.

The Selling Securityholder is an “underwriter” within the meaning of Section 2(a)(11) of the U.S. Securities Act of 1933, as amended (the “Securities Act”), and any profits on the sales of shares of our Common Stock by the Selling Securityholder and any discounts, commissions or concessions received by the Selling Securityholder are deemed to be underwriting discounts and commissions under the Securities Act. Our Common Stock is listed on the Nasdaq Capital Market under the symbol “KRBP”. On May 12, 2023, the last reported sales price per share of our Common Stock was \$3.84.

We are an “emerging growth company” as that term is used in the Jumpstart Our Business Startups Act of 2012 (the “JOBS Act”) and, as such, we have elected to comply with certain reduced public company reporting requirements for this prospectus and future filings with the Securities and Exchange Commission.

We may amend or supplement this prospectus from time to time by filing amendments or supplements as required. You should read this prospectus, together with additional information described under the heading “*Where You Can Find More Information*”, and any amendments or supplements carefully before you invest in any of our securities.

**INVESTING IN OUR COMMON STOCK INVOLVES SUBSTANTIAL RISKS. YOU SHOULD REVIEW CAREFULLY THE RISKS AND UNCERTAINTIES DESCRIBED UNDER THE HEADING “RISK FACTORS” BEGINNING ON PAGE 13 OF THIS PROSPECTUS.**

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

**The date of this prospectus is May 19, 2023**

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You should rely only on the information we have provided in this prospectus, any applicable prospectus supplement and any related free writing prospectus. Neither we nor the Selling Securityholders have authorized anyone to provide you with information different from that contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus. No dealer, salesperson or other person is authorized to give any information or to represent anything not contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus. You must not rely on any unauthorized information or representation. This prospectus is an offer to sell only the securities offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. You should assume that the information in this prospectus, any applicable prospectus supplement or any related free writing prospectus is accurate only as of the date on the front of the document, regardless of the time of delivery of this prospectus or any sale of a security. Since the date of this prospectus and the documents incorporated by reference into this prospectus, our business, financial condition, results of operations and prospects may have changed.

**For Investors Outside the United States:** The Selling Securityholders are offering to sell, and seeking offers to buy, the securities offered by this prospectus only in jurisdictions where offers and sales are permitted. Neither we nor the Selling Securityholders have done anything that would permit this offering or the possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the securities offered by this prospectus and the distribution of this prospectus outside the United States.

## ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-1 that we filed with the Securities and Exchange Commission (the “SEC”) using the “shelf” registration process. Under this shelf registration process, the Selling Securityholder may, from time to time, sell the securities offered by it described in this prospectus. We will not receive any proceeds from the sale by such Selling Securityholder of the securities offered by it described in this prospectus.

Neither we nor the Selling Securityholder have authorized anyone to provide you with any information or to make any representations other than those contained in this prospectus or any applicable prospectus supplement or any free writing prospectuses prepared by or on behalf of us or to which we have referred you. Neither we nor the Selling Securityholder take responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. Neither we nor the Selling Securityholder will make an offer to sell these securities in any jurisdiction where the offer or sale is not permitted.

We may also provide a prospectus supplement or post-effective amendment to the registration statement to add information to, or update or change information contained in, this prospectus. You should read both this prospectus and any applicable prospectus supplement or post-effective amendment to the registration statement together with the additional information to which we refer you in the section of this prospectus entitled “*Where You Can Find More Information.*”

Unless the context indicates otherwise, references in this prospectus to the “Company,” “Kiromic,” “we,” “us,” “our,” and similar terms refer to Kiromic Biopharma, Inc., a Delaware corporation.

This prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under “*Where You Can Find More Information.*”

### CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements contained in this prospectus may constitute “forward-looking statements” for purposes of federal securities laws. Such statements can be identified by the fact that they do not relate strictly to historical or current facts. Forward-looking statements appear in a number of places in this prospectus including, without limitation, in the section titled “*Business.*” In addition, any statements that refer to projections, forecasts or other characterizations of future events or circumstances, including any underlying assumptions, are forward-looking statements. Forward-looking statements are typically identified by words such as “plan,” “believe,” “expect,” “anticipate,” “contemplate,” “intend,” “outlook,” “estimate,” “forecast,” “project,” “continue,” “could,” “may,” “might,” “possible,” “potential,” “predict,” “should,” “will,” “would” and other similar words and expressions (including the negative of any of the foregoing), but the absence of these words does not mean that a statement is not forward-looking.

These forward-looking statements are based on information available as of the date of this prospectus and our managements’ current expectations, forecasts and assumptions, and involve a number of judgments, known and unknown risks and uncertainties and other factors, many of which are outside the control of the Company and our directors, officers and affiliates. There can be no assurance that future developments will be those that have been anticipated. Accordingly, forward-looking statements should not be relied upon as representing our views as of any subsequent date.

These forward-looking statements involve a number of risks, uncertainties or other assumptions that may cause actual results or performance to be materially different from those expressed or implied by these forward-looking statements. These risks and uncertainties include, but are not limited to, those factors described in “*Risk Factors,*” our periodic filings with the SEC and the following:

- Our goals and strategies.
- Our future business development, financial condition and results of operations.

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- Our expected timing of human clinical trials and other related milestones.
- Expected changes in our revenue, costs or expenditures.
- Our ability to obtain financing in amounts sufficient to fund our operations and continue as a going concern and avoid seeking protection under Chapters 7 or 11 of the United States Bankruptcy Code.
- Difficulties or delays in the product development process, including the results of preclinical studies or clinical trials.
- Difficulties or delays in the regulatory approval process.
- Manufacturing, sales, marketing and distribution of any of our products that may be successfully developed and approved for commercialization.
- Growth of and competition trends in our industry.
- Our expectations regarding demand for, and market acceptance of, our products.
- Our expectations regarding our relationships with investors, institutional funding partners and other parties we collaborate with.
- Fluctuations in general economic and business conditions in the markets in which we operate; including those fluctuations caused by COVID-19.
- Our ability to raise capital when needed.
- Relevant government policies and regulations relating to our industry.
- The outcome of any pending or threatened litigation.

We cannot guarantee that the results and other expectations expressed, anticipated or implied in any forward-looking statement will be realized. The risks set forth under Item 1A of our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, and subsequent quarterly reports on Form 10-Q describe major risks to our business, and you should read and interpret any forward-looking statements together with these risks. A variety of factors, including these risks, could cause our actual results and other expectations to differ materially from the anticipated results or other expectations expressed, anticipated or implied in our forward-looking statements. Should known or unknown risks materialize, or should underlying assumptions prove inaccurate, actual results could differ materially from past results and those anticipated, estimated or projected in the forward-looking statements. You should bear this in mind as you consider any forward-looking statements.

Our forward-looking statements speak only as of the dates on which they are made. We do not undertake any obligation to publicly update or revise our forward-looking statements even if experience or future changes makes it clear that any projected results expressed or implied in such statements will not be realized, except as may be required by law.

## PROSPECTUS SUMMARY

*This summary highlights selected information that is presented in greater detail elsewhere in this prospectus. Because it is only a summary, it does not contain all of the information you should consider before investing in our securities and it is qualified in its entirety by, and should be read in conjunction with, the more detailed information included elsewhere in this prospectus. Before you decide whether to purchase our securities, you should read this entire prospectus carefully, including the section of this prospectus titled “Risk Factors”. You should also carefully read the information in this prospectus, including our financial statements, and the exhibits to the registration statement of which this prospectus is a part.*

## Overview

Kiromic BioPharma, Inc. (together with its subsidiary, “we,” “us,” “our” or the “Company”) is an Artificial Intelligence (“AI”) driven, end-to-end allogeneic cell therapy company, currently developing multi-indication allogeneic T cell therapies that exploits the natural potency of Gamma Delta T cells (“GDTs”) to target solid tumors. Our end-to-end approach consists of target discovery and validation, product development, and current good manufacturing practices (“cGMP”), which we believe will allow us to leverage a new framework for the next generation of cell therapies. We also have new technologies in development that we believe will support our end-to-end approach.

From a development standpoint, we utilize innovative engineered and non-engineered GDT manufacturing technologies and are developing proprietary, virus-free gene editing tools, to develop novel therapies for solid tumors that we believe will be effective and cost-efficient. Our Procel, Isocel, and Deltacel product platform candidates consist of allogeneic cell therapy candidates that are currently in the preclinical development stage. Our Deltacel product candidate consists of non-engineered GDTs that have been expanded, enriched, and activated ex-vivo through a proprietary process, and will be used to treat solid tumors regardless of the specific tumor antigen expression. Our Procel product candidate consists of engineered GDTs and will be used to target PD-L1. Our Isocel product candidate consists of engineered GDTs and will be used to target Mesothelin Isoform 2 positive tumors (“Iso-Meso”).

We currently have three product candidates: 1) Deltacel: not-engineered gamma delta T cells, expanded and activated with proprietary technology; 2) Procel: gamma delta T cells engineered with a PD-1 switch receptor; 3) Isocel: gamma delta T cells engineered with an anti-Mesothelin isoform 2 Chimeric Antigen Receptor.

We have a total of five clinical programs to study our key product candidates:

- 1) Deltacel-01: this phase 1 clinical trial will evaluate Deltacel in combination with low-dose radiation for patients with non-small cell lung cancer (NSCLC)
- 2) Procel combination: this phase 1 clinical trial is expected to evaluate Procel in combination with low-dose radiation for patients with PD-L1 positive solid malignancies.
- 3) Alexis-PRO-1: this phase 1 clinical trial is expected to evaluate Procel in patients with PD-L1 positive solid malignancies.
- 4) Isocel combination: this phase 1 clinical trial is expected to evaluate Isocel in combination with low-dose radiation for patients with Mesothelin Isoform 2 positive solid malignancies.
- 5) Alexis-ISO-1 this phase 1 clinical trial is expected to evaluate Isocel in patients with Mesothelin Isoform 2 positive solid malignancies.

Since the second half of 2022, we have been developing a novel, non-engineered GDT cell therapy based on a proprietary methodology of expanding and activating GDT cells from healthy donors. The product candidate, Deltacel, is intended to be used in combination with a low-dose radiation.

Accordingly, we have entered into a Sponsored Research Agreement (the “SRA”) with Principal Investigator James W. Welsh, M.D. of The University of Texas MD Anderson Cancer Center, to facilitate the development of our Deltacel, Procel, and Isocel product candidates. We believe this SRA will generate sufficient in-vivo pre-clinical data to enhance our GDT product platform, supporting three new IND submissions: (1) Deltacel in combination with low-dose radiation (“IND #1”); (2) Procel in combination with a low-dose radiation (“IND #2”); and (3) Isocel in combination with a low-dose radiation (“IND #3”). The first IND to be submitted to the FDA will be IND#1, as explained in further detail below. The beginning of the clinical trial activation process will begin after the following two events: (1) the IND receives FDA authorization to begin the clinical trial (which would take place 30 days after receipt by the FDA, unless the FDA raises concerns or questions regarding the proposed clinical trials and places the trial on a clinical hold within that 30-day time period); and (2) commencing the review and approval process by an independent institutional review board (“IRB”) or ethics committee at the selected clinical trial site(s).

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IND #1 will evaluate Deltacel GDTs in combination with low-dose radiation. We submitted the IND for the Deltacel trial on March 31, 2023. On April 28, 2023, the FDA has authorized Deltacel-01 IND application. We expect to begin the activation of clinical trial process in Q2 2023. IND #2 combines a low-dose radiation and our genetically engineered product candidate targeting PD-L1, which is the target associated with the ALEXIS-PRO-1 clinical trial candidate on the Procel product candidate platform. IND #3 combines a low-dose radiation and our genetically engineered product candidate targeting Iso-Meso, the target associated with the ALEXIS-ISO-1 clinical trial candidate on the Isocel product candidate platform. Since the Company has aligned its operations with the Deltacel product candidate and IND #1, we are planning to submit INDs for IND #2 and IND #3 when we obtain sufficient financing to support the progression of the development of those additional clinical trial candidates.

We have not generated any revenue from sales to date, and we continue to incur significant research and development and other expenses related to our ongoing operations. As a result, we are not and have never been profitable and have incurred losses in each period since we began principal business operations in 2012. As discussed in more detail below, the Company is currently in discussions with financing sources in an attempt to secure short-term financing to continue operations and fund other liquidity needs through the end of the year. In the absence of such financing, management anticipates that existing cash resources will not be sufficient to meet operating and liquidity needs beyond mid-June, 2023.

### **YA Purchase Agreement**

On October 13, 2022, we entered into a standby equity purchase agreement (the “YA Purchase Agreement”) with YA II PN, Ltd., a Cayman Islands exempt limited partnership (“YA II”), pursuant to which we will have the right, but not the obligation, to sell to YA II up to \$5,000,000 of our Common Stock, subject to increase by an additional \$3,000,000 of Common Stock at the Company’s election (the “Commitment Increase”). YA II is a fund managed by YA Advisors Global, LP, headquartered in Mountainside, New Jersey. Upon the satisfaction of the conditions to YA II’s purchase obligations set forth in the YA Purchase Agreement, we will have the right, but not the obligation, from time to time at our discretion until the first day of the month next following the 36-month anniversary of the date on which the initial registration statement filed with respect to the YA Purchase has been declared effective by the SEC, to direct YA II to purchase a specified amount of shares of Common Stock (each such sale, a “YA Advance”) by delivering written notice to YA II (each, a “YA Advance Notice”).

While there is no mandatory minimum amount for any YA Advance, a YA Advance may be for a number of shares of Common Stock not to exceed 200% of the average of the daily trading volume of the Common Stock on the Nasdaq Capital Market during regular trading hours as reported by Bloomberg L.P. during the five trading days immediately preceding the date of the YA Advance Notice. The shares of Common Stock, if any, that we elect to sell to YA II pursuant to a YA Advance will be purchased at a price equal to 98% of the lowest daily VWAP (as defined below) during the two consecutive trading days commencing on the date of delivery of a YA Advance Notice. “VWAP” means, for any trading day, the daily volume weighted average price of the Common Stock for such trading day on the Nasdaq Capital Market as reported by Bloomberg L.P. during regular trading hours. See the section of this prospectus titled “Committed Equity Financing” for additional information regarding the YA Purchase Agreement.

### **Corporate Information**

We were first organized as a corporation in the State of Texas on August 6, 2006 under the name “Kiromic, Inc.” On May 27, 2016, we converted to a corporation in the State of Delaware under the name “Kiromic, Inc.” and on December 16, 2019, we changed our name to “Kiromic BioPharma, Inc.” Our principal executive office is 7707 Fannin, Suite 140, Houston, TX 77054. Our telephone number is (832) 968-4888. Our website is [www.kiromic.com](http://www.kiromic.com). The information contained on our website is not a part of this prospectus, nor is such content incorporated by reference herein, and should not be relied upon in determining whether to make an investment in our common stock.

Kiromic, Kiromic BioPharma, Diamond, Deltacel, Procel, Isocel, and our logo are some of our trademarks used in this prospectus. This prospectus also includes trademarks, tradenames and service marks that are the property of other organizations. Solely for convenience, our trademarks and tradenames referred to in this prospectus may appear without the ® and ™ symbols, but those references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the right of the applicable licensor to these trademarks and tradenames.



### **Implications of Being an Emerging Growth Company and a Smaller Reporting Company**

We qualify as an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, as amended. As an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable generally to public companies. These provisions include:

- being permitted to only disclose two years of audited financial statements in addition to any required unaudited interim financial statements with correspondingly reduced “Management’s Discussion and Analysis of Financial Condition and Results of Operations” disclosure;
- reduced disclosure about our executive compensation arrangements;
- not being required to hold advisory votes on executive compensation or to obtain stockholder approval of any golden parachute arrangements not previously approved; and
- an exemption from the auditor attestation requirement of Section 404 of the Sarbanes-Oxley Act of 2002, as amended, in the assessment of our internal control over financial reporting.

We may take advantage of these exemptions until the fifth anniversary of our initial public offering or such earlier time that we are no longer an emerging growth company. We would cease to be an emerging growth company on the date that is the earliest of (i) the last day of the fiscal year in which we have total annual gross revenue of \$1.07 billion or more; (ii) the last day of our fiscal year following the fifth anniversary of the date of the completion of our initial public offering; (iii) the date on which we have issued more than \$1.0 billion in nonconvertible debt during the previous three years; or (iv) the last day of the fiscal year in which we are deemed to be a large accelerated filer under the rules of the SEC, which means the market value of our common stock that is held by non-affiliates exceeds \$700.0 million as of the prior June 30th. We may choose to take advantage of some but not all of these exemptions. We have taken advantage of reduced reporting requirements in this prospectus. Accordingly, the information contained herein may be different from the information you receive from other public companies in which you hold stock. We are in the process of evaluating the benefits of relying on other exemptions and reduced reporting requirements under the JOBS Act. Subject to certain conditions, as an emerging growth company, we may rely on certain of these exemptions, including without limitation, providing an auditor’s attestation report on our system of internal controls over financial reporting pursuant to Section 404(b) of the Sarbanes-Oxley Act.

We are also a “smaller reporting company” as defined under the Securities Act and Exchange Act. We may continue to be a smaller reporting company so long as either (i) the market value of shares of our common stock held by non-affiliates is less than \$250 million or (ii) our annual revenue was less than \$100 million during the most recently completed fiscal year and the market value of shares of our common stock held by non-affiliates is less than \$700 million. If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. Specifically, as a smaller reporting company, we may choose to present only the two most recent fiscal years of audited financial statements in our Annual Report on Form 10-K and have reduced disclosure obligations regarding executive compensation, and, similar to emerging growth companies, if we are a smaller reporting company under the requirements of (ii) above, we would not be required to obtain an attestation report on internal control over financial reporting issued by our independent registered public accounting firm.

## THE OFFERING

Issuer	Kiromic Biopharma, Inc.
Shares of Common Stock offered by the Selling Securityholder	1,302,083 shares of Common Stock that we may elect, in our discretion, to issue and sell to the Selling Securityholder under the YA Purchase Agreement from time to time.
Terms of the Offering	The Selling Securityholder will determine when and how it will dispose of any shares of Common Stock registered under this prospectus for resale.
Common Stock Outstanding Before this Offering (1)	979,243 shares of Common Stock.
Common Stock Outstanding After this Offering	2,281,326 shares of Common Stock.
Use of Proceeds	We will not receive any proceeds from the resale of shares of Common Stock included in this prospectus by the Selling Securityholder. However, we may receive up to \$5,000,000 in aggregate gross proceeds (or up to \$8,000,000 in aggregate gross proceeds in the event that we request the \$3,000,000 Commitment Increase from the Selling Securityholder) under the YA Purchase Agreement from sales of Common Stock that we may elect to make to the Selling Securityholder pursuant to the YA Purchase Agreement, if any, from time to time in our discretion. We expect to use the net proceeds that we receive under the YA Purchase Agreement for working capital and general corporate purposes, which may include capital expenditures, research and development expenditures, regulatory affairs expenditures, clinical trial expenditures, acquisitions of new technologies and investments, business combinations and the repayment, refinancing, redemption or repurchase of indebtedness or capital stock. However, we have not designated any specific uses and have no current agreement with respect to any acquisition or strategic transaction. See “Use of Proceeds.”
Market for our Common Stock and Public Warrants	Our Common Stock is listed on the Nasdaq Capital Market under the symbol “KRBP”.
Risk factors	See “ <i>Risk Factors</i> ” beginning on page [ ] and other information included in this prospectus for a discussion of factors you should carefully consider before deciding to invest in the securities being offered by this prospectus.

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(1) The number of shares of Common Stock outstanding is based on an aggregate of 979,243 shares outstanding as of April 30, 2023, assumes that we have not otherwise issued any shares of Common Stock to YA II pursuant to the YA Purchase Agreement (other than the 20,111 shares of Common Stock issued to YA II in connection with the signing of such agreement) which is more fully described elsewhere in this prospectus and excludes:

- 6,111 shares of our common stock issuable upon the exercise of outstanding options with a weighted-average exercise price of \$287.61 per share;
- 577 shares of our common stock issuable upon the vesting of outstanding restricted stock units, with a weighted-average grant date fair value equal to \$258.88 per share;

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- 62,500 shares of our common stock underlying outstanding warrants that were issued in October 2020 with an exercise price of \$15.00 per share;
- 400,000 shares of our common stock underlying outstanding warrants that were issued in July 2021 with an exercise price of \$6.25 per share;
- Zero shares of our common stock reserved for future issuance under our Omnibus 2021 Equity Incentive Plan; and
- any shares that may be issued pursuant to the YA Purchase Agreement (except the 20,111 committed shares that have already been issued to YA II pursuant to such agreement, which shares are included in the total shares outstanding as of April 30, 2023). See the section of this prospectus titled “*Committed Equity Financing*” for additional information regarding the YA Purchase Agreement and the committed shares.

### **RISK FACTORS**

*Investing in our securities involves a high degree of risk. Before making an investment decision, you should consider carefully the following risk factors, as well as the other information set forth in this prospectus, including matters addressed in the section titled “Cautionary Note Regarding Forward-Looking Statements”. If any of these risks actually occur, it may materially harm our business, financial condition, liquidity and results of operations. As a result, the market price of our securities could decline, and you could lose all or part of your investment. Additionally, the risks and uncertainties described in this prospectus, any prospectus supplement, any post-effective amendment or in any document incorporated by reference herein or therein are not the only risks and uncertainties that we face. We may face additional risks and uncertainties that are not presently known to us, or that we currently deem immaterial. The following discussions should be read in conjunction with our financial statements and the notes to the financial statements included therein.*

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

***It is not possible to predict the actual number of shares we will sell under the YA Purchase Agreement to the Selling Securityholder, or the actual gross proceeds resulting from those sales. Further, we may not have access to the full amount available under the YA Purchase Agreement with the Selling Securityholder.***

On October 13, 2022, we entered into the YA Purchase Agreement with the Selling Securityholder, pursuant to which the Selling Securityholder has committed to purchase up to \$5,000,000 of our Common Stock or up to \$8,000,000 of our Common Stock in the event that we request the \$3,000,000 Commitment Increase from the Selling Securityholder), subject to certain limitations and conditions set forth in the YA Purchase Agreement. The shares of our Common Stock that may be issued under the YA Purchase Agreement may be sold by us to the Selling Securityholder at our discretion from time to time.

We generally have the right to control the timing and amount of any sales of our shares of Common Stock to the Selling Securityholder under the YA Purchase Agreement. Sales of our Common Stock, if any, to the Selling Securityholder under the YA Purchase Agreement will depend upon market conditions and other factors to be determined by us. We may ultimately decide to sell to the Selling Securityholder all, some or none of the shares of our Common Stock that may be available for us to sell to the Selling Securityholder pursuant to the YA Purchase Agreement.

Because the purchase price per share to be paid by the Selling Securityholder for the shares of Common Stock that we may elect to sell to the Selling Securityholder under the YA Purchase Agreement, if any, will fluctuate based on the market prices of our Common Stock prior to each Advance or Additional Advance made pursuant to the YA Purchase Agreement, if any, it is not possible for us to predict, as of the date of this prospectus and prior to any such sales or additional sales, the number of shares of Common Stock that we will sell to the Selling Securityholder under the YA Purchase Agreement, the purchase price per share that the Selling Securityholder will pay for shares purchased from us under the YA Purchase Agreement.

Moreover, although the YA Purchase Agreement provides that we may sell up to an aggregate of \$5,000,000 of our Common Stock to the Selling Securityholder, only 1,302,083 shares of our Common Stock are being registered for resale under the registration statement of which this prospectus forms a part. If we elect to sell to the Selling Securityholder all of the 1,302,083 shares of Common Stock being registered for resale under this prospectus, depending on the market price of our Common Stock prior to each Advance or Additional Advance made pursuant to the YA Purchase Agreement, the actual gross proceeds from the sale of all such shares may be substantially less than the \$5,000,000 available to us under the YA Purchase Agreement, which could materially adversely affect our liquidity.

If it becomes necessary for us to issue and sell to the Selling Securityholder under the YA Purchase Agreement more than the 1,302,083 shares being registered for resale under this prospectus in order to receive aggregate gross proceeds equal to \$5,000,000 (or up to \$8,000,000 in aggregate gross proceeds in the event that we request the \$3,000,000 Commitment Increase from the Selling Securityholder) under the YA Purchase Agreement, we must file with the SEC one or more additional registration statements to register under the Securities Act the resale by the Selling Securityholder of any such additional shares of our Common Stock we wish to sell from time to time under the YA Purchase Agreement, which the SEC must declare effective. Any issuance and sale by us under the YA Purchase Agreement of shares of Common Stock in addition to the 1,302,083 shares of Common Stock being registered for resale by the Selling Securityholder under the registration statement of which this prospectus forms a part could cause additional dilution to our stockholders.

We are not required or permitted to issue any shares of Common Stock under the YA Purchase Agreement if such issuance would breach our obligations under the rules or regulations of Nasdaq. In addition, the Selling Securityholder will not be required to purchase any shares of our Common Stock if such sale or additional sale would result in the Selling Securityholder's beneficial ownership exceeding 9.99% of the then outstanding voting power or number of Common Stock. Our inability to access a part or all of the amount available under the YA Purchase Agreement, in the absence of any other financing sources, could have a material adverse effect on our business.

***The sale and issuance of our Common Stock to the Selling Securityholder will cause dilution to our existing stockholders, and the sale of the shares of Common Stock acquired by the Selling Securityholder, or the perception that such sales may occur, could cause the price of our Common Stock to fall.***

The purchase price for the shares that we may sell to the Selling Securityholder under the YA Purchase Agreement will fluctuate based on the price of our Common Stock. Depending on a number of factors, including market liquidity, sales of such shares may cause the trading price of our Common Stock to fall.

If and when we do sell shares to the Selling Securityholder, the Selling Securityholder may resell all, some, or none of those shares at its discretion, subject to the terms of the YA Purchase Agreement. Therefore, sales to the Selling Securityholder by us could result in substantial dilution to the interests of other holders of our Common Stock. Additionally, the sale of a substantial number of shares of our Common Stock to the Selling Securityholder, or the anticipation of such sales, could make it more difficult for us to sell equity or equity related securities in the future at a desirable time and price.

***Investors who buy shares of Common Stock at different times will likely pay different prices.***

Pursuant to the YA Purchase Agreement, we control the timing and amount of any sales of Common Stock to the Selling Securityholder. If and when we do elect to sell shares of our Common Stock to the Selling Securityholder pursuant to the YA Purchase Agreement, the Selling Securityholder may resell all, some, or none of such shares in its discretion and at different prices, subject to the terms of the YA Purchase Agreement. As a result, investors who purchase shares from the Selling Securityholder in this offering at different times will likely pay different prices for those shares, and so may experience different levels of dilution and, in some cases, substantial dilution and different outcomes in their investment results. Investors may experience a decline in the value of the shares they purchase from the Selling Securityholder in this offering as a result of future sales made by us to the Selling Securityholder at prices lower than the prices such investors paid for their shares in this offering. In addition, if we sell a substantial number of shares to the Selling Securityholder under the YA Purchase Agreement, or if investors expect that we will do so, the actual sales of shares or the mere existence of our arrangement with the Selling Securityholder may make it more difficult for us to sell equity or equity-related securities in the future at a desirable time and price.

***Our management team will have broad discretion over the use of the net proceeds from our sale of shares of Common Stock to the Selling Securityholder, if any, and you may not agree with how we use the proceeds and the proceeds may not be invested successfully.***

Our management team will have broad discretion as to the use of the net proceeds from our sale of shares of Common Stock to the Selling Securityholder, if any, and we could use such proceeds for purposes other than those contemplated at the time of commencement of this offering. Accordingly, you will be relying on the judgment of our management team with regard to the use of those net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. It is possible that, pending their use, we may invest those net proceeds in a way that does not yield a favorable, or any, return for us. The failure of our management team to use such funds effectively could have a material adverse effect on our business, financial condition, operating results and cash flows.

## COMMITTED EQUITY FINANCING

On October 13, 2022, we entered into the YA Purchase Agreement with the Selling Securityholder. Pursuant to the YA Purchase Agreement, we have the right to sell to the Selling Securityholder up to \$5,000,000 of shares of our Common Stock, subject to increase by an additional \$3,000,000 of Common Stock at the Company's election (the "Commitment Increase"), and subject to certain limitations and conditions set forth in the YA Purchase Agreement, from time to time during the term of the YA Purchase Agreement. Sales of Common Stock to the Selling Securityholder under the YA Purchase Agreement, and the timing of any such sales, are at our option, and we are under no obligation to sell any securities to the Selling Securityholder under the YA Purchase Agreement. In accordance with our obligations under the YA Purchase Agreement, we have filed the registration statement of which this prospectus forms a part with the SEC to register under the Securities Act the resale by the Selling Securityholder of up to 1,302,083 shares of Common Stock, consisting of shares of Common Stock that we may elect, in our sole discretion, to issue and sell to the Selling Securityholder, from time to time under the YA Purchase Agreement.

We do not have the right to commence any sales of our Common Stock to the Selling Securityholder under the YA Purchase Agreement until the date on which all of the conditions to the Selling Securityholder's purchase obligation set forth in the YA Purchase Agreement have been satisfied, including that the registration statement of which this prospectus forms a part be declared effective by the SEC and the final form of this prospectus is filed with the SEC. From and after such date, we will have the right, but not the obligation, from time to time at our discretion until the first day of the month next following the 24-month anniversary of the date on which this registration statement has been declared effective by the SEC, to purchase a number of shares of Common Stock not to exceed 100% of the average of the daily trading volume of the Common Stock on Nasdaq during regular trading hours as reported by Bloomberg L.P during the five trading days immediately preceding the date of the Advance Notice as described further below under the heading "*—Advances and Payments of Common Stock Under the YA Purchase Agreement.*" or \$1,000,000

We will control the timing and amount of any sales of Common Stock to the Selling Securityholder. Actual sales of shares of our Common Stock to the Selling Securityholder under the YA Purchase Agreement will depend on a variety of factors to be determined by us from time to time, which may include, among other things, market conditions, the trading price of our Common Stock, and determinations by us as to the appropriate sources of funding for our company and its operations. Moreover, we may not issue or sell any shares of Common Stock to the Selling Securityholder under the A Purchase Agreement which, when aggregated with all other shares of Common Stock then beneficially owned by the Selling Securityholder and its affiliates (as calculated pursuant to Section 13(d) of the Exchange Act and Rule 13d-3 promulgated thereunder), would result in the Selling Securityholder beneficially owning shares of Common Stock in excess of the 9.9% Beneficial Ownership Limitation. Neither we nor the Selling Securityholder may assign or transfer any of our respective rights and obligations under the YA Purchase Agreement, and no provision of the YA Purchase Agreement may be modified or waived by the parties other than by an instrument in writing signed by both parties. The net proceeds from sales, if any, under the YA Purchase Agreement, will depend on the frequency and prices at which we sell shares of Common Stock to the Selling Securityholder. To the extent we sell shares under the YA Purchase Agreement, we currently plan to use any proceeds therefrom for working capital and general corporate purposes, which may include capital expenditures, research and development expenditures, regulatory affairs expenditures, clinical trial expenditures, acquisitions of new technologies and investments, business combinations and the repayment, refinancing, redemption or repurchase of indebtedness or capital stock.

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As consideration for the Selling Securityholder's commitment to purchase shares of Common Stock at our direction upon the terms and subject to the conditions set forth in the YA Purchase Agreement, we issued 20,111 Commitment Shares to the Selling Securityholder and paid \$10,000 to YA Principal Investments, LLC, a subsidiary of the Selling Securityholder. The YA Purchase Agreement contains customary representations, warranties, conditions and indemnification obligations of the parties. The representations, warranties and covenants contained in such agreements were made only for purposes of such agreements and as of specific dates, were solely for the benefit of the parties to such agreements and may be subject to limitations agreed upon by the contracting parties.

### **Advances of Common Stock Under the YA Purchase Agreement**

We will have the right, but not the obligation, from time to time at our discretion, until the first day of the month next following the 24-month anniversary of the date on which this registration statement has been declared effective by the SEC, to direct the Selling Securityholder to purchase up to a specified maximum amount of shares of Common Stock as set forth in the YA Purchase Agreement by delivering an irrevocable written notice to the Selling Securityholder (each, an "Advance Notice") on any trading day (each, an "Advance Notice Date"), so long as:

- the number of shares to be issued under any single Advance does not exceed 100% of the average of the daily trading volume of Common Stock on Nasdaq during regular trading hours as reported by Bloomberg L.P. during the five trading days immediately preceding the Advance Notice Date, unless otherwise agreed by the parties or \$1,000,000; and
- the applicable Pricing Period for all prior Advances has been completed and all shares of Common Stock subject to all prior Advances have been received by the Selling Securityholder.

### **Conditions to Each Advance**

The Selling Securityholder's obligation to accept Advance Notices and Additional Advance Notices that are timely delivered by us under the YA Purchase Agreement and to purchase shares of our Common Stock in Advances and Additional Advances under the YA Purchase Agreement are subject to the satisfaction, at the applicable Advance Notice Date or Additional Advance Notice Date, of the conditions precedent thereto set forth in the YA Purchase Agreement, all of which are entirely outside of the Selling Securityholder's control, which conditions include the following:

- the accuracy in all material respects of our representations and warranties included in the YA Purchase Agreement;
- there being an effective registration statement pursuant to which the Selling Securityholder is permitted to utilize the prospectus thereunder to resell all of the Common Stock that we shall issue and sell to the Selling Securityholder (the "Advance Shares" pursuant to such Advance Notice);
- the sale and issuance of such Advance Shares or Additional Advance Shares being legally permitted by all laws and regulations to which we are subject;
- no Material Outside Event (as such term is defined in the YA Purchase Agreement) shall have occurred and be continuing;
- us having performed, satisfied, and complied in all material respects with all covenants, agreements, and conditions required by the YA Purchase Agreement to be performed, satisfied, or complied with by us;
- no statute, rule, regulation, executive order, decree, ruling, or injunction having been enacted, entered, promulgated, or endorsed by any court or governmental authority of competent jurisdiction that prohibits or directly, materially, and adversely affects any of the transactions contemplated by the YA Purchase Agreement; and
- the Common Stock being quoted for trading on Nasdaq and us having not received any written notice that is then still pending threatening the continued quotation of the Common Stock on Nasdaq.

### **Termination of the YA Purchase Agreement**

Unless earlier terminated as provided in the YA Purchase Agreement, the YA Purchase Agreement will terminate automatically on the earliest to occur of:

- the first day of the month next following the 24-month anniversary of the date on which this registration statement has been declared effective by the SEC; and
- the date on which the Selling Securityholder shall have purchased shares of Common Stock under the YA Purchase Agreement for an aggregate gross purchase price equal to \$5,000,000.

We also have the right to terminate the YA Purchase Agreement at any time, at no cost or penalty, upon five trading days' prior written notice to the Selling Securityholder; *provided* that there are no outstanding Advance Notices under which we are yet to issue Common Stock. We and the Selling Securityholder may also terminate the YA Purchase Agreement at any time by mutual written consent.

### **No Short-Selling by the Selling Securityholder**

The Selling Securityholder has agreed that it and its affiliates will not engage in any short sales during the term of the YA Purchase Agreement and will not enter into any transaction that establishes a net short position with respect to the Common Stock, provided that nothing shall restrict the Selling Securityholder from selling a number of shares of Common Stock that it is obligated to purchase under a pending Advance Notice but has not yet received from us.

### **Effect of Sales of our Common Stock under the YA Purchase Agreement on our Stockholders**

All shares of Common Stock that may be issued or sold by us to the Selling Securityholder under the YA Purchase Agreement that are being registered under the Securities Act for resale by the Selling Securityholder in this offering are expected to be freely tradable. The shares of Common Stock being registered for resale in this offering may be issued and sold by us to the Selling Securityholder from time to time at our discretion over the term of the YA Purchase Agreement. The resale by the Selling Securityholder of a significant amount of shares registered for resale in this offering at any given time, or the perception that these sales may occur, could cause the market price of our Common Stock to decline and to be highly volatile. Sales of our Common Stock, if any, to the Selling Securityholder under the YA Purchase Agreement will depend upon market conditions and other factors to be determined by us. We may ultimately decide to sell to the Selling Securityholder all, some, or none of the shares of our Common Stock that may be available for us to sell to the Selling Securityholder pursuant to the YA Purchase Agreement.

If and when we do elect to sell shares of our Common Stock to the Selling Securityholder pursuant to the YA Purchase Agreement, the Selling Securityholder may resell all, some, or none of such shares in its discretion and at different prices subject to the terms of the YA Purchase Agreement. As a result, investors who purchase shares from the Selling Securityholder in this offering at different times will likely pay different prices for those shares, and so may experience different levels of dilution and, in some cases, substantial dilution and different outcomes in their investment results. Investors may experience a decline in the value of the shares they purchase from the Selling Securityholder in this offering as a result of future sales made by us to the Selling Securityholder at prices lower than the prices such investors paid for their shares in this offering. In addition, if we sell a substantial number of shares to the Selling Securityholder under the YA Purchase Agreement, or if investors expect that we will do so, the actual sales of shares or the mere existence of our arrangement with the Selling Securityholder may make it more difficult for us to sell equity or equity-related securities in the future at a desirable time and price.

Because the purchase price per share to be paid by the Selling Securityholder for the shares of Common Stock that we may elect to sell to the Selling Securityholder under the YA Purchase Agreement, if any, will fluctuate based on the market prices of our Common Stock during the applicable Pricing Period, as of the date of this prospectus we cannot reliably predict the number of shares of Common Stock that we will sell to the Selling Securityholder under the YA Purchase Agreement, the actual purchase price per share to be paid by the Selling Securityholder for those shares, or the actual gross proceeds to be raised by us from those sales, if any.

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As of April 30, 2023, there were 979,243 shares of our Common Stock outstanding, of which 945,199 shares were held by non-affiliates. If all of the 1,302,083 shares offered for resale by the Selling Securityholder under the registration statement that includes this prospectus were issued and outstanding as of April 30, 2023, such shares would represent approximately 57% of the total number of shares of our Common Stock outstanding and approximately 57% of the total number of outstanding shares held by non-affiliates.

Although the YA Purchase Agreement provides that we may, in our discretion, from time to time after the date of this prospectus and during the term of the YA Purchase Agreement, direct the Selling Securityholder to purchase shares of our Common Stock from us in one or more Advances under the YA Purchase Agreement, for a maximum aggregate purchase price of up to \$5,000,000, only 1,302,083 shares of Common Stock are being registered for resale under the registration statement that includes this prospectus. Assuming all of such 1,302,083 shares were sold to the Selling Securityholder at the maximum 95% discount to the per share price of \$9.73 (which represents the lower of the official closing price of our Common Stock on Nasdaq on October 12, 2022 the trading day immediately preceding the date of the YA Purchase Agreement, and the average official closing price of our Common Stock on Nasdaq for the five consecutive trading days ending on October 12, 2022, the trading day immediately preceding the date of the YA Purchase Agreement), such number of shares would be insufficient to enable us to receive aggregate gross proceeds from the sale of such shares to the Selling Securityholder equal to the Selling Securityholder's \$5,000,000 total aggregate purchase commitment under the YA Purchase Agreement. While the market price of our Common Stock may fluctuate from time to time after the date of this prospectus and, as a result, the actual purchase price to be paid by the Selling Securityholder under the YA Purchase Agreement for shares of our Common Stock, if any, may also fluctuate, in order for us to receive the full amount of the Selling Securityholder's commitment under the YA Purchase Agreement, it is possible that we may need to issue and sell more than the number of shares being registered for resale under the registration statement that includes this prospectus.

If it becomes necessary for us to issue and sell to the Selling Securityholder more shares than are being registered for resale under this prospectus in order to receive aggregate gross proceeds equal to \$5,000,000 under the YA Purchase Agreement, we must first (i) to the extent necessary, obtain stockholder approval prior to issuing shares of the Common Stock in excess of the Exchange Cap in accordance with applicable Nasdaq Listing Rules, and (ii) file with the SEC one or more additional registration statements to register under the Securities Act the resale by the Selling Securityholder of any such additional shares of our Common Stock, which the SEC must declare effective, in each case, before we may elect to sell any additional shares of our Common Stock to the Selling Securityholder under the YA Purchase Agreement. The number of shares of our Common Stock ultimately offered for resale by the Selling Securityholder depends upon the number of shares of Common Stock, if any, we ultimately sell to the Selling Securityholder under the YA Purchase Agreement.

The issuance, if any, of shares of our Common Stock to the Selling Securityholder pursuant to the YA Purchase Agreement would not affect the rights or privileges of our existing stockholders, except that the economic and voting interests of each of our existing stockholders would be diluted. Although the number of shares of our Common Stock that our existing stockholders own would not decrease as a result of sales, if any, under the YA Purchase Agreement, the shares of our Common Stock owned by our existing stockholders would represent a smaller percentage of our total outstanding shares of our Common Stock after any such issuance.

**Gross proceeds we would receive from the Selling Securityholder from our sale of shares of Common Stock to the Selling Securityholder under the YA Purchase Agreement at varying purchase prices:**

Assumed Average Purchase Price Per Share	Number of Registered Shares to be Issued if Full Purchase <sup>(1)</sup>	Percentage of Outstanding Shares After Giving Effect to the Issuance to the Selling Securityholder <sup>(2)</sup>	Gross Proceeds from the Sale of Shares to the Selling Securityholder Under the Purchase Agreement
\$ 2.00	2,500,000	71.85 %	\$ 5,000,000.00
\$ 3.00	1,666,667	62.99 %	\$ 4,999,998.00
\$ 3.84 <sup>(3)</sup>	1,302,083	57.08 %	\$ 5,000,000.00
\$ 4.00	1,250,000	56.07 %	\$ 5,000,000.00
\$ 5.00	1,000,000	50.52 %	\$ 5,000,000.00
\$ 9.75 <sup>(4)</sup>	513,875	34.42 %	\$ 5,010,281.25



- (1) Does not include the aggregate amount of 20,111 Commitment Shares that we issued to the Selling Securityholder as consideration for its commitment to purchase shares of Common Stock under the YA Purchase Agreement. The number of shares of Common Stock offered by this prospectus may not cover all the shares we ultimately sell to the Selling Securityholder under the YA Purchase Agreement, depending on the purchase price per share. We have included in this column only those shares being offered for resale by the Selling Securityholder under this prospectus (excluding the 20,111 Commitment Shares), without regard for the Beneficial Ownership Limitation. The assumed average purchase prices are solely for illustration and are not intended to be estimates or predictions of future stock performance.
- (2) The denominator is based on 979,243 shares outstanding as of May 12, 2023 (which includes the aggregate amount of 20,111 Commitment Shares we issued to the Selling Securityholder), adjusted to include the issuance of the number of shares set forth in the second column that we would have sold to the Selling Securityholder, assuming the average purchase price in the first column. The numerator is based on the number of shares of Common Stock set forth in the second column.
- (3) Represents the closing price of the Common Stock on Nasdaq on May 12, 2023, the trading day prior to the filing of the registration statement of which this prospectus forms a part.
- (4) Represents the average Nasdaq Official Closing Price for the five trading days immediately preceding the date of the YA Purchase Agreement) on October 12, 2022, the trading day prior to execution of the YA Purchase Agreement.

#### **USE OF PROCEEDS**

All of the shares of our Common Stock offered by the Selling Securityholder pursuant to this prospectus will be sold by the Selling Securityholder for its own account. We will not receive any of the direct proceeds from these sales. However, we may receive up to \$5,000,000 aggregate gross proceeds (or up to \$8,000,000 in the event that we request the \$3,000,000 Commitment Increase from the Selling Securityholder) from any sales we make to the Selling Securityholder pursuant to the YA Purchase Agreement. The net proceeds from sales, if any, under the YA Purchase Agreement, will depend on the frequency and prices at which we sell shares of Common Stock to the Selling Securityholder after the date of this prospectus. See the section titled “*Plan of Distribution*” elsewhere in this prospectus for more information.

We expect to use the net proceeds that we receive under the YA Purchase Agreement for working capital and general corporate purposes, which may include capital expenditures, research and development expenditures, regulatory affairs expenditures, clinical trial expenditures, manufacturing expenditures, acquisitions of new technologies and investments, business combinations and the repayment, refinancing, redemption or repurchase of indebtedness or capital stock. However, we have not designated any specific uses and have no current agreement with respect to any acquisition or strategic transaction. As of the date of this prospectus, we cannot specify with certainty all of the particular uses, and the respective amounts we may allocate to those uses, for any net proceeds we receive. Accordingly, we will retain broad discretion over the use of these proceeds. Pending our use of the net proceeds as described above, we intend to invest the net proceeds pursuant to the YA Purchase Agreement in interest bearing instruments.

**PRINCIPAL SECURITYHOLDERS**

The following table sets forth certain information regarding beneficial ownership of shares of our common stock as of May 12, 2023, by (i) each person known to beneficially own more than 5% of our outstanding common stock, (ii) each of our directors, (iii) each of our named executive officers, and (iv) all of our directors and executive officers as a group. Except as otherwise indicated, the persons named in the table below have sole voting and investment power with respect to all shares beneficially owned, subject to community property laws, where applicable.

Beneficial ownership is determined in accordance with the rules of the Securities and Exchange Commission and includes voting or investment power with respect to the securities. Shares of common stock that may be acquired by an individual or group within 60 days of May 12, 2023, pursuant to the exercise of options or warrants, are deemed to be outstanding for the purpose of computing the percentage ownership of such individual or group, but are not deemed to be outstanding for the purpose of computing the percentage ownership of any other person shown in the table. Percentage of ownership is based on 979,243 shares of common stock outstanding on May 12, 2023. In computing the number of shares of common stock beneficially owned by a person and the percentage ownership of that person, we deemed to be outstanding all shares of common stock subject to options or other convertible securities held by that person or entity that are currently exercisable or releasable or that will become exercisable or releasable within 60 days of May 12, 2023. We did not deem these shares outstanding, however, for the purpose of computing the percentage ownership of any other person.

Except as indicated in footnotes to this table, we believe that the stockholders named in this table have sole voting and investment power with respect to all shares of common stock shown to be beneficially owned by them, based on information provided to us by such stockholders. Unless otherwise indicated, the address for each director and executive officer listed is: c/o Kiromic BioPharma, Inc., 7707 Fannin Street, Suite 140, Houston, TX 77008.

<b>Beneficial Owner</b>	<b>Number of Shares Beneficially Owned</b>	<b>Shares of common stock issuable upon exercise of stock options</b>	<b>Shares of common stock issuable upon vesting of restricted stock units</b>	<b>Percentage of Common Stock Beneficially Owned</b>
<b>Directors and Executive Officers</b>				
Pietro Bersani	21,453	—	—	2.19 %
Americo Cicchetti	6,296	—	—	*
Michael Nagel	6,296	—	—	*
All current directors and executive officers as a group (3 persons)	34,045	—	—	3.48 %
<b>5% Stockholders</b>				
Cede & Co	318,375	—	—	32.51 %
Sabby Volatility Warrant Master Fund, Ltd	60,762	—	—	6.20 %
YA II PN, Ltd	56,366	—	—	5.76 %

\* Less than 1%

## SELLING SECURITYHOLDER

This prospectus relates to the offer and sale by the Selling Securityholder of up to 1,302,083 shares of Common Stock that have been and may be issued by us to the Selling Securityholder under the YA Purchase Agreement. For additional information regarding the shares of Common Stock included in this prospectus, see the section entitled “*Committed Equity Financing*” above. We are registering the shares of Common Stock included in this prospectus pursuant to the provisions of the YA Purchase Agreement we entered into with the Selling Securityholder on October 13, 2022 in order to permit the Selling Securityholder to offer the shares included in this prospectus for resale from time to time. Except for the transactions contemplated by the YA Purchase Agreement, and as set forth in the section entitled “*Plan of Distribution*” in this prospectus, the Selling Securityholder has not had any material relationship with us within the past three years. As used in this prospectus, the term “Selling Securityholder” mean YA II PN Ltd., a Cayman Islands exempt limited partnership, and the pledgees, donees, transferees, assignees, successors, designees, and others who later come to hold any of the Selling Securityholder’s interest in the Common Stock other than through a public sale.

The table below presents information regarding the Selling Securityholder and the shares of Common Stock that may be resold by the Selling Securityholder from time to time under this prospectus. This table is prepared based on information supplied to us by the Selling Securityholder, and reflects holdings as of May 12, 2023. The number of shares in the column entitled “Maximum Number of Shares of Common Stock to be Offered Pursuant to this Prospectus” represents all of the shares of Common Stock being offered for resale by the Selling Securityholder under this prospectus. The Selling Securityholder may sell some, all, or none of the shares being offered for resale in this offering. We do not know how long the Selling Securityholder will hold the shares before selling them, and we are not aware of any existing arrangements between the Selling Securityholder and any other stockholder, broker, dealer, underwriter, or agent relating to the sale or distribution of the shares of our Common Stock being offered for resale by this prospectus.

Beneficial ownership is determined in accordance with Rule 13d-3(d) promulgated by the SEC under the Exchange Act, and includes shares of our Common Stock with respect to which the Selling Securityholder has sole or shared voting and investment power. The percentage of shares of our Common Stock beneficially owned by the Selling Securityholder prior to the offering shown in the table below is based on an aggregate of 979,243 shares of our Common Stock outstanding on May 12, 2023. Because the purchase price to be paid by the Selling Securityholder for shares of Common Stock, if any, that we may elect to sell to the Selling Securityholder in one or more Advances from time to time under the YA Purchase Agreement will be determined on the applicable Advance Notice Dates for such Advances, the actual number of shares of Common Stock that we may sell to the Selling Securityholder under the YA Purchase Agreement may be fewer than the number of shares being offered for resale under this prospectus. The fourth column in the table below assumes the resale by the Selling Securityholder of all of the shares of Common Stock being offered for resale pursuant to this prospectus.

We have determined beneficial ownership in accordance with the rules of the SEC. Except as indicated by the footnotes below, we believe, based on the information furnished to us, that the Selling Securityholder has sole voting and investment power with respect to all shares of Common Stock that it beneficially owns, subject to applicable community property laws. Except as otherwise described below, based on the information provided to us by the Selling Securityholder, the Selling Securityholder is not a broker-dealer or an affiliate of a broker-dealer.

Name of Selling Securityholder	Number of Shares of Common Stock Beneficially Owned		Maximum Number of Shares of Common Shares Being Offered <sup>(2)</sup>	Shares of Common Stock Beneficially Owned After the Offered Shares of Common Stock Are Sold	
	Number <sup>(1)</sup>	Percent		Number <sup>(3)</sup>	Percent
YA II PN Ltd. <sup>(4)</sup>	56,336	5.76	1,302,083	56,336	2.47

\* Less than one percent.

- (1) Represents the Commitment Shares we issued to the Selling Securityholder in consideration for entering into the YA Purchase Agreement with us. In accordance with Rule 13d-3(d) under the Exchange Act, we have excluded from the number of shares beneficially owned prior to the offering all of the shares that the Selling Securityholder may be required to purchase under the YA Purchase Agreement, because the issuance of such shares is at our discretion and is subject to conditions contained in the YA Purchase Agreement, the satisfaction of which are entirely outside of the Selling Securityholder's control, including the registration statement that includes this prospectus becoming and remaining effective. Furthermore, the Advances and Additional Advances of Common Stock under the YA Purchase Agreement are subject to certain agreed upon maximum amount limitations set forth in the YA Purchase Agreement. Also, the YA Purchase Agreement prohibits us from issuing and selling any shares of our Common Stock to the Selling Securityholder to the extent such shares, when aggregated with all other shares of our Common Stock then beneficially owned by the Selling Securityholder, would cause the Selling Securityholder's beneficial ownership of our Common Stock to exceed the 4.99% Beneficial Ownership Limitation.
- (2) Includes the 20,111 Commitment Shares.
- (3) Assumes the sale of all shares being offered pursuant to this prospectus.
- (4) YA II PN, Ltd. is a fund managed by Yorkville Advisors Global, LP ("Yorkville LP"). Yorkville Advisors Global II, LLC ("Yorkville LLC") is the General Partner of Yorkville LP. All investment decisions for YA II PN, Ltd. are made by Yorkville LLC's President and Managing Member, Mr. Mark Angelo. The business address of YA II PN, Ltd. is 1012 Springfield Avenue, Mountainside, NJ 07092.

### **PLAN OF DISTRIBUTION**

The shares of Common Stock offered by this prospectus are being offered by the Selling Securityholder. The shares may be sold or distributed from time to time by the Selling Securityholder directly to one or more purchasers or through brokers, dealers, or underwriters who may act solely as agents at market prices prevailing at the time of sale, at prices related to the prevailing market prices, at negotiated prices, or at fixed prices, which may be changed. We will not receive any of the proceeds from the sale of the securities by the Selling Securityholder. We may receive up to \$5,000,000 aggregate gross proceeds under the YA Purchase Agreement from any sales we make to the Selling Securityholder pursuant to the YA Purchase Agreement. The net proceeds from sales, if any, under the YA Purchase Agreement, will depend on the frequency and prices at which we sell shares of Common Stock to the Selling Securityholder after the date of this prospectus.

The sale of the shares of our Common Stock offered by this prospectus could be effected in one or more of the following methods:

- ordinary brokers' transactions;
- transactions involving cross or block trades;
- through brokers, dealers, or underwriters who may act solely as agents;
- "at the market" into an existing market for our Common Stock;
- in other ways not involving market makers or established business markets, including direct sales to purchasers or sales effected through agents;
- in privately negotiated transactions; or
- any combination of the foregoing.

In order to comply with the securities laws of certain states, if applicable, the shares may be sold only through registered or licensed brokers or dealers. In addition, in certain states, the shares may not be sold unless they have been registered or qualified for sale in the state or an exemption from the state's registration or qualification requirement is available and complied with.

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The Selling Securityholder is an “underwriter” within the meaning of Section 2(a)(11) of the Securities Act. The Selling Securityholder has informed us that it intends to use one or more registered broker-dealers to effectuate all sales, if any, of our Common Stock that it may acquire from us pursuant to the YA Purchase Agreement. Such sales will be made at prices and at terms then prevailing or at prices related to the then-current market price. Such registered broker-dealer may, in some circumstances (for instance if such registered broker dealer’s involvement is not limited to receiving commission not in excess of the usual and customary distributors’ or sellers’ commissions), be considered to be an underwriter within the meaning of Section 2(a)(11) of the Securities Act. The Selling Securityholder has informed us that each such broker-dealer may receive commissions from the Selling Securityholder for executing such sales for the Selling Securityholder and, if so, such commissions will not exceed customary brokerage commissions.

Brokers, dealers, underwriters, or agents participating in the distribution of the shares of our Common Stock offered by this prospectus may receive compensation in the form of commissions, discounts, or concessions from the purchasers, for whom the broker-dealers may act as agent, of the shares sold by the Selling Securityholder through this prospectus. The compensation paid to any such particular broker-dealer by any such purchasers of shares of our Common Stock sold by the Selling Securityholder may be less than or in excess of customary commissions. Neither we nor the Selling Securityholder can presently estimate the amount of compensation that any agent will receive from any purchasers of shares of our Common Stock sold by the Selling Securityholder.

We know of no existing arrangements between the Selling Securityholder or any other stockholder, broker, dealer, underwriter, or agent relating to the sale or distribution of the shares of our Common Stock offered by this prospectus.

We may from time to time file with the SEC one or more supplements to this prospectus or amendments to the registration statement of which this prospectus forms a part to amend, supplement, or update information contained in this prospectus, including, if and when required under the Securities Act, to disclose certain information relating to a particular sale of shares offered by this prospectus by the Selling Securityholder, including with respect to any compensation paid or payable by the Selling Securityholder to any brokers, dealers, underwriters, or agents that participate in the distribution of such shares by the Selling Securityholder, and any other related information required to be disclosed under the Securities Act. We will pay the expenses incident to the registration under the Securities Act of the offer and sale of the shares of our Common Stock covered by this prospectus by the Selling Securityholder.

As consideration for its irrevocable commitment to purchase our Common Stock under the YA Purchase Agreement, we issued to the Selling Securityholder 20,111 shares of our Common Stock as Commitment Shares in connection with the execution of the YA Purchase Agreement. In addition, we have paid an affiliate of the Selling Securityholder a structuring fee of \$10,000 in connection with the structuring of the transactions by the Selling Securityholder under the YA Purchase Agreement.

We also have agreed to indemnify the Selling Securityholder and certain other persons against certain liabilities in connection with the offering of shares of our Common Stock offered hereby, including liabilities arising under the Securities Act, or, if such indemnity is unavailable, to contribute amounts required to be paid in respect of such liabilities. The Selling Securityholder has agreed to indemnify us against liabilities under the Securities Act that may arise from certain written information furnished to us by the Selling Securityholder specifically for use in this prospectus or, if such indemnity is unavailable, to contribute amounts required to be paid in respect of such liabilities. Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers, and controlling persons, we have been advised that, in the opinion of the SEC, this indemnification is against public policy as expressed in the Securities Act, and is therefore unenforceable.

The Selling Securityholder has represented to us that at no time prior to the date of the YA Purchase Agreement has the Selling Securityholder or any entity managed or controlled by the Selling Securityholder engaged in or effected, in any manner whatsoever, directly or indirectly, for its own account or for the account of any of its affiliates, any short sale or any transaction that establishes a net short position with respect to our Common Stock. The Selling Securityholder has agreed that, during the term of the YA Purchase Agreement, none of the Selling Securityholder, its officers, its sole member, or any entity managed or controlled by the Selling Securityholder will enter into or effect, directly or indirectly, any of the foregoing transactions for its own account or for the account of any other such person or entity.

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We have advised the Selling Securityholder that it is required to comply with Regulation M promulgated under the Exchange Act. With certain exceptions, Regulation M precludes the Selling Securityholder, any affiliated purchasers, and any broker-dealer or other person who participates in the distribution from bidding for or purchasing, or attempting to induce any person to bid for or purchase, any security that is the subject of the distribution until the entire distribution is complete. Regulation M also prohibits any bids or purchases made in order to stabilize the price of a security in connection with the distribution of that security. All of the foregoing may affect the marketability of the securities offered by this prospectus.

This offering will terminate on the date that all shares of our Common Stock offered by this prospectus have been sold by the Selling Securityholder.

#### **LEGAL MATTERS**

The validity of the securities being offered by this prospectus will be passed upon for us by Sheppard Mullin Richter & Hampton LLP, New York, NY.

#### **EXPERTS**

The financial statements of Kiromic BioPharma, Inc. and subsidiaries as of and for the year ended December 31, 2022, incorporated by reference in this prospectus and elsewhere in the registration statement have been audited by Whitley Penn LLP, an independent registered public accounting firm. As stated in their report dated April 17, 2023, the retrospective adjustments to the financial statements have also been audited by Whitley Penn LLP, and such report also includes an explanatory paragraph regarding the existence of substantial doubt about the Company's ability to continue as a going concern. Such financial statements are incorporated by reference in reliance upon the report of Whitley Penn LLP given their authority as experts in accounting and auditing.

The financial statements of Kiromic BioPharma, Inc. for the year ended December 31, 2021 (before the effects of the retrospective adjustments to the financial statements) (not separately presented herein) have been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report incorporated by reference in the Prospectus. The retrospective adjustments to the 2021 financial statements have been audited by Whitley Penn LLP. Such financial statements are incorporated by reference in reliance upon the respective reports of Deloitte & Touche LLP and Whitley Penn LLP given their authority as experts in accounting and auditing.

#### **WHERE YOU CAN FIND MORE INFORMATION**

We have filed a registration statement on Form S-1, including exhibits, under the Securities Act, with respect to the securities offered by this prospectus. This prospectus does not contain all of the information included in the registration statement. For further information pertaining to us and our securities, you should refer to the registration statement of which this prospectus is a part and the exhibits to such registration statement. The descriptions in this prospectus of the provisions of documents filed as exhibits to this prospectus are only summaries of those documents' material terms. You can read copies of such documents, along with copies of reports, proxy statements and other information filed by us with the SEC at the SEC's website at <http://www.sec.gov>.

We also maintain a website at [www.kiromic.com](http://www.kiromic.com). Through our website, we make available, free of charge, annual, quarterly and current reports, proxy statements and other information as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. The information contained on, or that may be accessed through, our website is not part of, and is not incorporated into, this prospectus and the inclusion of our website address in this prospectus is an inactive textual reference only.

#### **INCORPORATION OF DOCUMENTS BY REFERENCE**

This prospectus is part of the registration statement but the registration statement includes and incorporates by reference additional information and exhibits. The SEC permits us to "incorporate by reference" the information contained in documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents rather than by including them in this prospectus. Information that is incorporated by reference is considered to be part of this prospectus and you should read it with the same care that you read this prospectus. Information that we file later with the SEC will automatically update and supersede the information that is either

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contained, or incorporated by reference, in this prospectus, and will be considered to be a part of this prospectus from the date those documents are filed. We have filed with the SEC, and incorporate by reference in this prospectus:

- [Annual Report on Form 10-K for the year ended December 31, 2022 filed with the SEC on April 17, 2023](#) and [Annual Report on Form 10-K/A for the year ended December 31, 2022 filed with the SEC on April 28, 2023](#).
- [Quarterly Report on Form 10-Q for the three months ended March 31, 2023 filed with the SEC on May 15, 2023](#).
- Current Reports on Form 8-K, filed with the SEC on [January 26, 2023](#); [February 27, 2023](#); [March 7, 2023](#); [March 10, 2023](#); [March 17, 2023](#); [March 31, 2023](#); [April 28, 2023](#); and [May 12, 2023](#).

In addition, all documents subsequently filed by us pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, prior to the termination of the offering (excluding any information furnished rather than filed) shall be deemed to be incorporated by reference into this prospectus.

Notwithstanding the statements in the preceding paragraphs, no document, report or exhibit (or portion of any of the foregoing) or any other information that we have “furnished” to the SEC pursuant to the Securities Exchange Act of 1934, as amended shall be incorporated by reference into this prospectus.

We will furnish without charge to you, on written or oral request, a copy of any or all of the documents incorporated by reference in this prospectus, including exhibits to these documents. You should direct any requests for documents to:

Kiromic Biopharma, Inc.  
7707 Fannin, Suite 140  
Houston, TX 77054  
Phone: (832) 968-4888

You also may access these filings on our website at <http://www.kiromic.com>. We do not incorporate the information on our website into this prospectus or any supplement to this prospectus and you should not consider any information on, or that can be accessed through, our website as part of this prospectus or any supplement to this prospectus (other than those filings with the SEC that we specifically incorporate by reference into this prospectus or any supplement to this prospectus).

Any statement contained in a document incorporated or deemed to be incorporated by reference in this prospectus will be deemed modified, superseded or replaced for purposes of this prospectus to the extent that a statement contained in this prospectus modifies, supersedes or replaces such statement. Any statement contained herein or in any document incorporated or deemed to be incorporated by reference shall be deemed to be modified or superseded for purposes of the registration statement of which this prospectus forms a part to the extent that a statement contained in any other subsequently filed document which also is or is deemed to be incorporated by reference modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed to constitute a part of the registration statement of which this prospectus forms a part, except as so modified or superseded.