

PROSPECTUS

Up to \$150,000,000



Common Stock

We have entered into a sales agreement, dated January 6, 2025, or the Sales Agreement, with TD Securities (USA) LLC, or TD Cowen, relating to shares of our common stock offered by this prospectus. In accordance with the terms of the Sales Agreement, we may offer and sell shares of our common stock, par value \$0.0001 per share, having an aggregate offering price of up to \$150,000,000 from time to time through TD Cowen, acting as our sales agent. The Sales Agreement replaces our prior sales agreement, dated January 5, 2024 with Cowen and Company, LLC, an affiliate of TD Cowen. As of the date of this prospectus, \$126,616,057 of shares of common stock remained available for sale under the Prior Sales Agreement. No sales will be made pursuant to the Prior Sales Agreement subsequent to the date of this prospectus.

Our common stock is listed on the Nasdaq Global Select Market under the symbol "OLMA." The last reported sale price of our common stock on January 3, 2025 was \$5.89 per share.

Sales of our common stock, if any, under this prospectus may be made in sales deemed to be "at the market" equity offerings as defined in Rule 415 promulgated under the Securities Act of 1933, as amended, or the Securities Act, including sales made directly on or through the Nasdaq Global Select Market, the existing trading market for our common stock, or any other existing trading market for our common stock. TD Cowen is not required to sell any specific number or dollar amount of securities, but will act as a sales agent using commercially reasonable efforts consistent with its normal trading and sales practices, on mutually agreed terms between TD Cowen and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

The compensation to TD Cowen for sales of common stock sold pursuant to the Sales Agreement will be an amount up to 3.0% of the gross proceeds of any shares of common stock sold under the Sales Agreement. In connection with the sale of the common stock on our behalf, TD Cowen will be deemed to be an "underwriter" within the meaning of the Securities Act and the compensation paid to TD Cowen will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to TD Cowen with respect to certain liabilities, including liabilities under the Securities Act and the Securities Exchange Act of 1934, as amended, or the Exchange Act. See the section titled "Plan of Distribution" on page 13 of this prospectus for additional information regarding the compensation to be paid to TD Cowen.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described under the section titled "[Risk Factors](#)" on page 5 of this prospectus and under similar headings in the other documents that are incorporated by reference into this prospectus.

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

TD Cowen

January 15, 2025

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we have filed with the U.S. Securities and Exchange Commission, or the SEC, utilizing a “shelf” registration process. Under this shelf registration process, we may offer and sell shares of our common stock and preferred stock, various series of debt securities and/or warrants to purchase any of such securities, either individually or in combination with other securities, from time to time in one or more offerings, up to a total aggregate offering amount of \$200,000,000. Under this prospectus, we may offer and sell shares of our common stock from time to time, up to a total aggregate offering amount of \$150,000,000, at prices and on terms to be determined by market conditions at the time of offering. We provide information to you about this offering of shares of our common stock in two separate documents that are bound together: (1) this prospectus, which describes the specific details regarding this offering; and (2) the accompanying base prospectus, which provides general information, some of which may not apply to this offering. Generally, when we refer to this “prospectus,” we are referring to both documents combined.

Before buying any of the common stock that we are offering, we urge you to carefully read this prospectus, together with the information incorporated by reference in this prospectus and any free writing prospectus that we have authorized for use in connection with this offering when making your investment decision. You should also read and consider the information in the documents we have referred to under the sections titled “Where You Can Find More Information” and “Incorporation of Certain Information by Reference.” These documents contain important information that you should consider when making your investment decision.

This prospectus adds to and updates information contained in the documents incorporated by reference into this prospectus. To the extent there is a conflict between the information contained in this prospectus, on the one hand, and the information contained in any document incorporated by reference into this prospectus that was filed with the SEC before the date of this prospectus, on the other hand, you should rely on the information in this prospectus. If any statement in one of these documents is inconsistent with a statement in another document having a later date (for example, a document incorporated by reference into this prospectus) the statement in the document having the later date modifies or supersedes the earlier statement.

We have not, and TD Cowen has not, authorized anyone to provide any information other than that contained or incorporated by reference in this prospectus or in any free writing prospectus that we have authorized for use in connection with this offering. We and TD Cowen take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We are not, and TD Cowen is not, making an offer to sell or soliciting an offer to buy these securities in any jurisdiction where an offer, sale or solicitation is not permitted. You should assume that the information appearing in this prospectus, the documents incorporated by reference herein and any free writing prospectus that we have authorized for use in connection with this offering, is accurate only as of the date of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

We are offering to sell, and seeking offers to buy, shares of common stock only in jurisdictions where offers and sales are permitted. The distribution of this prospectus and the offering of the common stock in certain jurisdictions may be restricted by law. 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 common stock and the distribution of this prospectus outside the United States. This prospectus does not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference herein were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such

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agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

PROSPECTUS SUMMARY

This summary highlights certain information about us, this offering and selected information contained elsewhere in or incorporated by reference into this prospectus. This summary provides an overview of selected information and does not contain all of the information you should consider before deciding whether to invest in our common stock. Therefore, you should read the entire prospectus, the information incorporated by reference herein and the information included in any free writing prospectus that we have authorized for use in connection with this offering carefully, including the “Risk Factors” section beginning on page 5 of this prospectus and in the documents incorporated by reference, and our consolidated financial statements and the related notes incorporated by reference in this prospectus, before deciding to invest in our common stock. Unless the context otherwise requires, we use the terms “Olema,” “Olema Pharmaceuticals,” “Company,” “we,” “us” and “our” in this prospectus to refer to Olema Pharmaceuticals, Inc. and, where appropriate, our consolidated subsidiaries.

Company Overview

We are a clinical-stage biopharmaceutical company focused on the discovery, development and commercialization of next generation targeted therapies for women’s cancers. We are advancing our pipeline of novel therapies by leveraging our deep understanding of endocrine-driven cancers, nuclear receptors, and mechanisms of acquired resistance. Our lead product candidate, palazestrant (OP-1250), is a novel orally-available small molecule with dual activity as both a complete estrogen receptor, or ER, antagonist, or CERAN, and a selective ER degrader, or SERD, currently being investigated in patients with recurrent, locally advanced or metastatic ER-positive, or ER+, human epidermal growth factor receptor 2-negative, or HER2-, breast cancer. In preclinical models, palazestrant binds and completely blocks ER-driven transcriptional activity in both wild-type and mutant forms of metastatic ER+ breast cancer including activity in central nervous system, or CNS, metastases models. In clinical studies across more than 400 patients, palazestrant has demonstrated strong anti-tumor activity, attractive pharmacokinetics and prolonged drug exposure, favorable tolerability, and combinability with CDK4/6 inhibitors with no significant drug-drug interaction. Palazestrant is being evaluated as a single agent in an ongoing Phase 3 clinical trial, OPERA-01, and in Phase 1/2 combination studies with a CDK4/6 inhibitor (palbociclib or ribociclib), a phosphatidylinositol 3 kinase alpha, or PI3Ka, inhibitor (alpelisib), and a Phase 1b/2 combination study with an mTOR inhibitor (everolimus).

Corporate Information

We were initially incorporated in Delaware in August 2006 under the name CombiThera, Inc., and we commenced operations in March 2007. In March 2009, we changed our name to Olema Pharmaceuticals, Inc. Our principal executive offices are located at 780 Brannan Street, San Francisco, California 94103, and our telephone number is (415) 651-3316. Our website address is www.olema.com. Information contained in, or accessible through, our website is not a part of this prospectus and is not incorporated by reference herein or therein, and the inclusion of our website address is only an inactive textual reference.

We use the Olema Oncology logo and other marks as trademarks in the United States and other countries. This prospectus contains references to our trademarks and service marks and to those belonging to other entities. Solely for convenience, trademarks and trade names referred to in this prospectus, including logos, artwork and other visual displays, may appear without the ® or TM symbols, but such references are not intended to indicate in any way that the respective owners will not assert, to the fullest extent under applicable law, their rights or the rights of the applicable licensor to these trademarks and trade names. We do not intend our use or display of other entities’ trade names, trademarks or service marks to imply a relationship with, or endorsement or sponsorship of us by, any other entity.

Implications of Being a Smaller Reporting Company

We are a “smaller reporting company” as defined in the Exchange Act. Smaller reporting companies may take advantage of certain scaled disclosures, including, among other things, providing only two years of audited financial statements in their Annual Report on Form 10-K, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and having reduced disclosure obligations regarding executive compensation. We will be able to take advantage of these reduced disclosures for so long as our voting and non-voting common stock held by non-affiliates is less than \$250.0 million measured on the last business day of our second fiscal quarter, or our annual revenue is less than \$100.0 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is less than \$700.0 million measured on the last business day of our second fiscal quarter.

THE OFFERING

Common Stock Offered by Us	Shares of our common stock having an aggregate offering price of up to \$150.0 million.
Common Stock to be Outstanding Following this Offering:	Up to 82,755,212 shares of our common stock, based on 57,288,319 shares of our common stock outstanding as of September 30, 2024, assuming sales of 25,466,893 shares of our common stock in this offering, which is based on an offering price of \$5.89 per share, the last reported sale price of our common stock on the Nasdaq Global Select Market on January 3, 2025. The actual number of shares issued will vary depending on the sale prices in this offering.
Manner of Offering	“At the market” offering that may be made from time to time through our sales agent, TD Cowen. See “Plan of Distribution” on page 13 of this prospectus.
Use of Proceeds	We currently intend to use the net proceeds, if any, of this offering for general corporate purposes, including research and development and working capital. See “Use of Proceeds” on page 10 for a more complete description of the intended use of proceeds from this offering.
Risk Factors	Investing in our common stock involves significant risk. See “Risk Factors” beginning on page 5 of this prospectus and other information included and incorporated by reference in this prospectus for a discussion of factors that you should carefully consider before deciding to invest in our common stock.
Nasdaq Global Select Market Symbol	“OLMA”

The number of shares of our common stock to be outstanding after this offering is based on 57,288,319 shares of our common stock outstanding as of September 30, 2024, and excludes:

- 19,928,875 shares of common stock issued subsequent to September 30, 2024 pursuant to that certain Securities Purchase Agreement dated as of November 29, 2024, or the Purchase Agreement;
- 7,604,163 shares of common stock issuable upon the exercise of outstanding pre-funded warrants issued subsequent to September 30, 2024 pursuant to the Purchase Agreement with an exercise price of \$0.0001;
- 3,420,000 shares of common stock issuable upon the exercise of outstanding pre-funded warrants issued subsequent to September 30, 2024 pursuant to that certain Exchange Agreement dated as of November 29, 2024, or the Exchange Agreement, with an exercise price of \$0.0001;
- 11,374,048 shares of common stock issuable upon the exercise of outstanding options as of September 30, 2024 with a weighted-average exercise price of \$10.06 per share;
- 207,500 shares of common stock issuable upon exercise of outstanding options granted subsequent to September 30, 2024 with a weighted-average exercise price of \$10.84;
- 403,000 shares of common stock issuable upon the vesting and settlement of outstanding restricted stock units as of September 30, 2024;

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- 1,839,603 shares of common stock reserved for future issuance under our 2020 Equity Incentive Plan, or Equity Plan, as of September 30, 2024, and any future increase in shares reserved for issuance under such plan;
- 337,906 shares of common stock reserved for future issuance under our 2022 Inducement Plan, or Inducement Plan, as of September 30, 2024; and
- 1,164,767 shares of common stock reserved for issuance under our 2020 Employee Stock Purchase Plan, or ESPP, as of September 30, 2024, and any future increase in shares reserved for issuance under such plan.

Except as otherwise indicated, all information in this prospectus assumes no exercise of outstanding options and no vesting and settlement of the outstanding restricted stock units described above.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risk factors described below and the risk factors incorporated by reference to our most recent Annual Report on Form 10-K and subsequent Quarterly Reports on Form 10-Q or Current Reports on Form 8-K we file after the date of this prospectus, and all other information contained or incorporated by reference into this prospectus, including our financial statements and the related notes, as updated by our subsequent filings under the Securities Exchange Act of 1934, as amended, or the Exchange Act, and in any free writing prospectus that we have authorized for use in connection with this offering before acquiring any of our common stock. These risks could have a material and adverse impact on our business, results of operations, financial condition and growth prospects, which may cause the trading price of our common stock to decline and you could lose all or part of your investment. The risks described in these documents are not the only ones we face, but those that we consider to be material. There may be other unknown or unpredictable economic, business, competitive, regulatory or other factors that could have material adverse effects on our business, financial condition, results of operations and prospects. Past financial performance may not be a reliable indicator of future performance, and historical trends should not be used to anticipate results or trends in future periods. If any of these risks actually occurs, our business, financial condition, results of operations or cash flow could be seriously harmed. This could cause the trading price of our securities to decline, resulting in a loss of all or part of your investment. Please also read carefully the section below titled “Special Note Regarding Forward-Looking Statements.”

Additional Risks Related to this Offering

We will have broad discretion in the use of the net proceeds from this offering and may not use them effectively.

Our management will have broad discretion in the application of the net proceeds from this offering, if any, and could spend the net proceeds in ways that do not improve our business, financial condition or results of operations or enhance the value of our common stock. You may not agree with our decisions, and our use of the proceeds may not yield any return on your investment. We intend to use the net proceeds from this offering for general corporate purposes, including research and development and working capital.

Because of the number and variability of factors that will determine our use of the net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. Our failure to apply the net proceeds of this offering effectively could compromise our ability to pursue our growth strategy and we might not be able to yield a significant return, if any, on our investment of these net proceeds. You will not have the opportunity to influence our decisions on how to use the net proceeds from this offering. The failure by our management to apply these funds effectively could result in financial losses that could harm our business, cause the price of our common stock to decline and delay the development of our product candidates. Pending their use, we may invest the net proceeds from this offering in a manner that does not produce income or that loses value.

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

The offering price per share in this offering may exceed the net tangible book value per share of our common stock outstanding prior to this offering. Assuming that an aggregate of 25,466,893 shares of our common stock are sold at a price of \$5.89 per share, the last reported sale price of our common stock on the Nasdaq Global Select Market on January 3, 2025, for aggregate gross proceeds of \$150.0 million, and after deducting commissions and estimated offering expenses payable by us, you would experience immediate dilution of \$1.71 per share, representing the difference between our as adjusted net tangible book value per share as of September 30, 2024 after giving effect to this offering and the assumed offering price. The exercise of outstanding stock options and the vesting and settlement of outstanding restricted stock units will result in further dilution of your investment. See the section titled “Dilution” below for a more detailed illustration of the dilution you would incur if you participate in this offering.

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You may experience future dilution as a result of future equity offerings.

To raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock at prices that may not be the same as the price per share in this offering. We may sell shares or other securities in any other offering at a price per share that is less than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by investors in this offering. As a result, our stockholders and other holders of our securities would experience immediate dilution upon the purchase of any shares of our common stock sold at such discount.

Future sales or issuances of our common stock in the public markets, or the perception of such sales, could depress the trading price of our common stock.

The sale of a substantial number of shares of our common stock or other securities convertible into or exchangeable for our common stock in the public markets, or the perception that such sales could occur, could depress the market price of our common stock and impair our ability to raise capital through the sale of additional equity securities. We may sell large quantities of our common stock at any time pursuant to this prospectus or in one or more separate offerings. We cannot predict the effect that future sales of common stock or other equity-related securities would have on the market price of our common stock.

The actual number of shares we will issue in this offering and the gross proceeds resulting from those sales, at any one time or in total, is uncertain.

Subject to certain limitations in the Sales Agreement and compliance with applicable law, we have the discretion to deliver a placement notice to TD Cowen at any time throughout the term of the Sales Agreement. The number of shares that are sold by TD Cowen after delivering a placement notice will fluctuate based on the market price of our common stock during the sales period and limits we set with TD Cowen in any instruction to sell shares, and the demand for our common stock during the sales period. Because the price per share of each share sold will fluctuate based on the market price of our common stock during the sales period, it is not possible at this stage to predict the number of shares or the gross proceeds to be raised in connection with those sales, if any, that will be ultimately issued.

The common stock offered hereby will be sold in “at the market offerings,” and investors who buy shares at different times will likely pay different prices.

Investors who purchase shares in this offering at different times will likely pay different prices, and so may experience different outcomes in their investment results. We will have discretion, subject to market demand, to vary the timing, prices and numbers of shares sold, and there is no minimum or maximum sales price. Investors may experience a decline in the value of their shares as a result of share sales made at prices lower than the prices they paid.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference herein, and any free writing prospectus that we have authorized for use in connection with this offering, contain “forward-looking statements” within the meaning of Section 27A of the Securities Act, Section 21E of the Exchange Act, and the Private Securities Litigation Reform Act of 1995. For all forward-looking statements, we claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995. These statements related to future events or to our future operating or financial performance and involve known or unknown risks, uncertainties, and other factors that may cause our actual results, performance, or achievements to be materially different from any future results, performances or achievements expressed or implied by the forward-looking statements. The forward-looking statements include, but are not limited to, statements about:

- our future financial performance;
- the sufficiency of our existing cash to fund our future operating expenses and capital expenditure requirements;
- the accuracy of our estimates regarding expenses, future revenue, capital requirements, and needs for additional financing;
- the scope, progress, results and costs of developing palazestrant, OP-3136 or any other product candidates we may develop, and conducting nonclinical studies and clinical trials, including our palazestrant Phase 1/2 and Phase 3 clinical trials;
- the timing and costs involved in obtaining and maintaining regulatory approval of palazestrant, OP-3136 or any other product candidates we may develop, and the timing or likelihood of regulatory filings and approvals, including our expectation to seek special designations for our product candidates for various diseases;
- our plans relating to commercializing palazestrant, OP-3136 and any other product candidates we may develop, if approved, including the geographic areas of focus and our ability to grow a sales team;
- the implementation of our strategic plans for our business and palazestrant, OP-3136 or any other product candidates we may develop;
- the size of the market opportunity for palazestrant, OP-3136 or any other product candidates we may develop in each of the diseases we target;
- our reliance on third parties to conduct nonclinical research activities, and for the manufacture of palazestrant, OP-3136 and any other product candidates we may develop;
- the beneficial characteristics, safety, efficacy and therapeutic effects of palazestrant, OP-3136 and any other product candidates we may develop, in each case, as a monotherapy and in combination with other drugs;
- our estimates of our total addressable market size, including the number of patients in the United States who suffer from the diseases we target and the number of subjects that will enroll in our clinical trials;
- the progress and focus of our current and future clinical trials, and the reporting of data from those trials;
- our ability to advance product candidates into and successfully complete clinical trials;
- the ability of our clinical trials to demonstrate the safety and efficacy of palazestrant, OP-3136 and any other product candidates we may develop, and other positive results;
- the success of competing therapies that are or may become available;
- developments relating to our competitors and our industry, including competing product candidates and therapies;

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- our plans relating to the further development and manufacturing of palazestrant, OP-3136 and any other product candidates we may develop, including additional indications that we may pursue;
- existing regulations and regulatory developments in the United States and other jurisdictions;
- our potential and ability to successfully manufacture and supply palazestrant, OP-3136 and any other product candidates we may develop for clinical trials and for commercial use, if approved;
- the rate and degree of market acceptance of palazestrant, OP-3136 and any other product candidates we may develop, as well as the pricing and reimbursement of palazestrant, OP-3136 and any other product candidates we may develop, if approved;
- our continued reliance on third parties to conduct additional clinical trials of palazestrant, OP-3136 and any other product candidates we may develop, and for the manufacture of our product candidates;
- our plans and ability to obtain and protect intellectual property rights;
- the scope of protection we are able to establish and maintain for intellectual property rights, including palazestrant, OP-3136 and any other product candidates we may develop;
- our ability to access capital resources on favorable terms, or at all;
- our ability to retain the continued service of our key personnel and to identify, hire, and then retain additional qualified personnel; and
- our intended use of the net proceeds from this offering.

All statements other than statements of historical facts contained in this prospectus and the documents incorporated by reference herein are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. This prospectus and the documents incorporated by reference herein also contain estimates and other statistical data made by independent parties and by us relating to market size and growth and other data about our industry.

This data involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. In addition, projections, assumptions and estimates of our future performance and the future performance of the markets in which we operate are necessarily subject to a high degree of uncertainty and risk.

In some cases, you can identify forward-looking statements by terms such as “anticipates,” “could,” “estimates,” “expects,” “intend,” “may,” “plans,” “potential,” “predicts,” “projects,” “should,” “would,” “will” or the negative of these terms or other similar expressions intended to identify forward-looking statements. These statements reflect our current views with respect to future events, are based on assumptions and are subject to risks and uncertainties. Given these risks and uncertainties, you should not place undue reliance on these forward-looking statements. We discuss in greater detail and incorporate by reference into this prospectus many of these risks and uncertainties under the section titled “Risk Factors” contained in this prospectus and in our most recent Annual Report on Form 10-K and Quarterly Reports on Form 10-Q, as updated by our subsequent filings under the Exchange Act. Also, these forward-looking statements represent our estimates and assumptions only as of the date of the document containing the applicable statement. Unless required by law, we undertake no obligation to update or revise any forward-looking statements to reflect new information or future events or developments. Thus, you should not assume that our silence over time means that actual events are bearing out as expressed or implied in such forward-looking statements. You should read this prospectus, together with the documents we have filed with the SEC that are incorporated by reference herein, and any free writing prospectus we have authorized for use in connection with a specific offering completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of the forward-looking statements in the foregoing documents by these cautionary statements.

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In addition, statements that “we believe” and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this prospectus, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain and investors are cautioned not to unduly rely upon these statements.

USE OF PROCEEDS

We may issue and sell shares of our common stock having aggregate sales proceeds of up to \$150,000,000 from time to time. The amount of the net proceeds from this offering will depend upon the number of shares of our common stock sold and the market price at which they are sold. Because there is no minimum offering amount, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time. There can be no assurance that we will sell any shares under or fully utilize the Sales Agreement with TD Cowen as a source of financing.

We currently intend to use the net proceeds from this offering, if any, primarily for general corporate purposes, including research and development, general and administrative expenses and capital expenditures. The amounts and timing of our use of the net proceeds from this offering will depend on a number of factors, such as the timing and progress of our clinical trials, preclinical studies and research and development efforts, the timing and progress of any partnering and commercialization efforts, technological advances and the competitive environment for our products. As of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds to us from the sale of the securities offered by us hereunder. Accordingly, our management will have broad discretion in the timing and application of these proceeds.

Pending the use of our net proceeds from this offering described above, we intend to invest the net proceeds in a variety of capital preservation investments, including short-term, investment-grade, and interest-bearing instruments.

DILUTION

Dilution is the amount by which the price paid by the purchasers of the shares of common stock sold in the offering exceeds the net tangible book value per share of common stock after the offering. Net tangible book value per share is determined by subtracting our total liabilities from the total book value of our tangible assets and dividing the difference by the number of shares of common stock deemed to be outstanding at that date.

Our historical net tangible book value as of September 30, 2024, was \$198.9 million, or \$3.47 per share.

After giving effect to the issuance and sale of 25,466,893 shares of common stock in this offering based on an assumed public offering price of \$5.89 per share, which is the last reported sale price of our common stock on the Nasdaq Global Select Market on January 3, 2025, after deducting offering commissions and estimated offering expenses payable by us, our as adjusted net tangible book value as of September 30, 2024 would have been \$345.7 million, or \$4.18 per share. This represents an immediate increase in as adjusted net tangible book value of \$0.71 per share to our existing stockholders and immediate dilution of \$1.71 per share to new investors purchasing common stock in this offering.

The following table illustrates this dilution on a per share basis:

Assumed public offering price per share		\$5.89
Historical net tangible book value per share as of September 30, 2024	\$3.47	
Increase per share attributable to new investors	<u>0.71</u>	
As adjusted net tangible book value per share after giving effect to this offering		<u>4.18</u>
Dilution in adjusted net tangible book value per share to new investors		<u>\$1.71</u>

The table above assumes for illustrative purposes that an aggregate of 25,466,893 shares of our common stock are sold during the term of the Sales Agreement at a price of \$5.89 per share, the last reported sale price of our common stock on the Nasdaq Global Select Market on January 3, 2025, for aggregate gross proceeds of \$150.0 million. The shares subject to the Sales Agreement with TD Cowen are being sold from time to time at various prices. An increase of \$1.00 per share in the price at which the shares are sold from the assumed offering price of \$5.89 per share shown in the table above, assuming all of our common stock in the aggregate amount of \$150.0 million during the term of the Sales Agreement with TD Cowen is sold at that price, would increase our adjusted net tangible book value per share after the offering to \$4.37 per share and would increase the dilution in net tangible book value per share to new investors in this offering to \$2.52 per share, after deducting commissions and estimated aggregate offering expenses payable by us. A decrease of \$1.00 per share in the price at which the shares are sold from the assumed offering price of \$5.89 per share shown in the table above, assuming all of our common stock in the aggregate amount of \$150.0 million during the term of the Sales Agreement with TD Cowen is sold at that price, would decrease our adjusted net tangible book value per share after the offering to \$3.93 per share and would decrease the dilution in net tangible book value per share to new investors in this offering to \$0.96 per share, after deducting commissions and estimated aggregate offering expenses payable by us. This information is supplied for illustrative purposes only.

To the extent that pre-funded warrants are exercised, options are exercised, restricted stock units vest and settle, new options or restricted stock units are issued under our equity incentive plans, or we issue additional shares of common stock in the future, there will be further dilution to investors participating in this offering.

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The number of shares of our common stock to be outstanding after this offering is based on 57,288,319 shares of our common stock outstanding as of September 30, 2024, and excludes:

- 19,928,875 shares of common stock issued subsequent to September 30, 2024 pursuant to the Purchase Agreement;
- 7,604,163 shares of common stock issuable upon the exercise of outstanding pre-funded warrants issued subsequent to September 30, 2024 pursuant to the Purchase Agreement with an exercise price of \$0.0001;
- 3,420,000 shares of common stock issuable upon the exercise of outstanding pre-funded warrants issued subsequent to September 30, 2024 pursuant to that certain Exchange Agreement dated as of November 29, 2024, or the Exchange Agreement, with an exercise price of \$0.0001;
- 11,374,048 shares of common stock issuable upon the exercise of outstanding options as of September 30, 2024 with a weighted-average exercise price of \$10.06 per share;
- 207,500 shares of common stock issuable upon exercise of outstanding options granted subsequent to September 30, 2024 with a weighted-average exercise price of \$10.84;
- 403,000 shares of common stock issuable upon the vesting and settlement of outstanding restricted stock units as of September 30, 2024;
- 1,839,603 shares of common stock reserved for future issuance under our Equity Plan as of September 30, 2024, and any future increase in shares reserved for issuance under such plan;
- 337,906 shares of common stock reserved for future issuance under our Inducement Plan as of September 30, 2024; and
- 1,164,767 shares of common stock reserved for issuance under our ESPP as of September 30, 2024, and any future increase in shares reserved for issuance under such plan.

PLAN OF DISTRIBUTION

We previously entered into a sales agreement, or the Prior Sales Agreement, under which we could issue and sell from time to time an aggregate of up to \$150,000,000 of shares of our common stock through Cowen and Company, LLC, an affiliate of TD Cowen, as our sales agent. As of the date of this prospectus, \$126,616,057 of shares of common stock remained available for sale under the Prior Sales Agreement. The Sales Agreement replaces the Prior Sales Agreement, and no sales will be made pursuant to the Prior Sales Agreement subsequent to the date of this prospectus.

We have entered into the Sales Agreement with TD Cowen, under which we may issue and sell from time to time up to \$150,000,000 of shares of our common stock through or to TD Cowen as our sales agent or principal. Sales of shares of our common stock, if any, will be made at market prices by any method that is deemed to be an “at the market offering” as defined in Rule 415 under the Securities Act, including sales made directly on the Nasdaq Global Select Market or any other trading market for our common stock. If authorized by us in writing, TD Cowen may purchase shares of our common stock as principal.

Each time we wish to issue and sell common stock under the Sales Agreement, we will notify TD Cowen of the number of placement shares to be issued, the period of dates on which such sales are anticipated to be made, any limitation on the number of shares that may be sold in any one day and any minimum price below which sales may not be made. Once we have so instructed TD Cowen, unless TD Cowen declines to accept the terms of this notice, TD Cowen has agreed to use its commercially reasonable efforts consistent with its normal trading and sales practices to sell such shares up to the amount specified on such terms. The obligations of TD Cowen under the Sales Agreement to sell our common stock are subject to a number of conditions that we must meet. TD Cowen or we may suspend the offering of our common stock being made through TD Cowen under the Sales Agreement upon proper notice to the other party. TD Cowen and we each have the right, by giving prior written notice as specified in the Sales Agreement, to terminate the Sales Agreement in each party’s sole discretion at any time.

The aggregate compensation payable to TD Cowen as sales agent will be an amount equal to up to 3.0% of the gross sales price of the shares sold through it pursuant to the Sales Agreement. We have also agreed to reimburse TD Cowen up to \$75,000 of the actual outside legal expenses incurred by TD Cowen in connection with this offering. We estimate that the total expenses of the offering payable by us, excluding commissions payable to TD Cowen under the Sales Agreement, will be approximately \$200,000.

The remaining sales proceeds, after deducting any expenses payable by us and any transaction fees imposed by any governmental, regulatory or self-regulatory organization in connection with the sales, will equal our net proceeds for the sale of such common stock.

TD Cowen will provide written confirmation to us following the close of trading on the Nasdaq Global Select Market on each day in which common stock is sold through it as sales agent under the Sales Agreement. Each confirmation will include the number of shares of common stock sold through it as sales agent on that day, the volume weighted average price of the shares sold and the net proceeds to us.

We will report at least quarterly the number of shares of common stock sold through TD Cowen under the Sales Agreement and the gross proceeds to us in connection with the sales of common stock.

Settlement for sales of common stock will occur, unless the parties agree otherwise, on the first trading day following the date on which any sales were made in return for payment of the net proceeds to us. There is no arrangement for funds to be received in an escrow, trust or similar arrangement.

In connection with the sales of our common stock on our behalf, TD Cowen may be deemed to be an “underwriter” within the meaning of the Securities Act, and the compensation paid to TD Cowen may be deemed

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to be underwriting commissions or discounts. We have agreed in the Sales Agreement to provide indemnification and contribution to TD Cowen against certain liabilities, including liabilities under the Securities Act and the Exchange Act. As sales agent, TD Cowen will not engage in any transactions intended to stabilize our common stock.

Our common stock is listed on the Nasdaq Global Select Market and trades under the symbol “OLMA.” The transfer agent of our common stock is Computershare Trust Company, N.A.

TD Cowen and/or its affiliates have provided, and may in the future provide, various investment banking and other financial services for us for which services they have received and, may in the future, receive customary fees.

LEGAL MATTERS

Cooley LLP is serving as our counsel in this offering. Certain legal matters will be passed upon for TD Cowen by Davis Polk & Wardwell LLP, Redwood City, California.

EXPERTS

The consolidated financial statements of Olema Pharmaceuticals, Inc. appearing in Olema Pharmaceuticals, Inc.'s Annual Report (Form 10-K) for the year ended December 31, 2023, have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon included therein, and incorporated herein by reference. Such financial statements are, and audited financial statements to be included in subsequently filed documents will be, incorporated herein in reliance upon the report of Ernst & Young LLP pertaining to such financial statements (to the extent covered by consents filed with the Securities and Exchange Commission) given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of the registration statement on Form S-3 we filed with the SEC under the Securities Act and does not contain all the information set forth or incorporated by reference in the registration statement. Whenever a reference is made in this prospectus to any of our contracts, agreements or other documents, the reference may not be complete and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated by reference into this prospectus for a copy of such contract, agreement or other document.

Because we are subject to the information and reporting requirements of the Exchange Act, we file annual, quarterly and other reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. The SEC website referenced above also contains reports, proxy statements and other information about issuers, like us, that file electronically with the SEC.

Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, including any amendments to those reports, and other information that we file with or furnish to the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act can also be accessed free of charge on the Investor section of our website, which is located at ir.olema.com. These filings will be available as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. The information contained in, or that can be accessed through, our website is not a part of this prospectus and is not incorporated by reference herein, and the inclusion of our website address in this prospectus is an inactive textual reference only.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to “incorporate by reference” information from other documents that 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 part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus, while information that we file later with the SEC will automatically update and supersede the information in this prospectus. We incorporate by reference into this prospectus and the registration statement of which this prospectus is a part the information or documents listed below and any future filings made by us with the SEC (other than Current Reports or portions thereof furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items and other portions of documents that are furnished, but not filed, pursuant to applicable rules promulgated by the SEC) that are filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made after the date of the initial filing of the registration statement of which this prospectus is a part but prior to the effectiveness of such registration statement, until we file a post-effective amendment that indicates the termination of all offerings of securities covered by this prospectus:

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2023, filed with the SEC on [March 11, 2024](#), or the 2023 Annual Report;
- the information specifically incorporated by reference into our 2023 Annual Report from our definitive proxy statement on Schedule 14A, filed with the SEC on [April 26, 2024](#);
- our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2024, June 30, 2024 and September 30, 2024, filed with the SEC on [May 8, 2024](#), [August 6, 2024](#), and [November 12, 2024](#), respectively;
- our Current Reports on Form 8-K (other than information furnished rather than filed), filed with the SEC on [January 5, 2024](#), [January 8, 2024](#), [May 15, 2024](#), [June 14, 2024](#), [July 2, 2024](#), [September 27, 2024](#), [December 2, 2024](#) and [December 10, 2024](#); and
- the description of our common stock contained in our Registration Statement on Form 8-A, filed with the SEC on [November 17, 2020](#), including any amendments or reports filed for the purpose of updating such description, including [Exhibit 4.3](#) to our Annual Report on Form 10-K for the year ended December 31, 2020, filed with the SEC on March 17, 2021.

We will provide to each person, including any beneficial owner, to whom a prospectus is delivered, upon written or oral request, without charge to the requester, a copy of any or all of the documents that are incorporated by reference into this prospectus but not delivered with the prospectus, including exhibits which are specifically incorporated by reference into such documents. You should direct any requests for documents by writing us at 780 Brannan Street, San Francisco, California 94103, Attn: Secretary, or by telephoning us at (415) 651-3316.

Any statement contained herein or in a document incorporated or deemed to be incorporated by reference into this document will be deemed to be modified or superseded for purposes of the document to the extent that a statement contained in this document or any other subsequently filed document that is deemed to be incorporated by reference into this document modifies or supersedes the statement.

Up to \$150,000,000



Common Stock

PROSPECTUS

TD Cowen

January 15, 2025
