

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

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

CARISMA THERAPEUTICS INC.

(Exact name of registrant as specified in its charter)

Delaware	26-2025616
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)

3675 Market Street, Suite 200
Philadelphia, PA 19104
(267) 491-6422

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Steven Kelly
President and Chief Executive Officer
Carisma Therapeutics Inc.
3675 Market Street, Suite 200
Philadelphia, PA 19104
(267) 491-6422

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copy to:

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New York, New York 10007
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Approximate date of commencement of proposed sale to the public: From time to time after this registration statement becomes effective.

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

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box:

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

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

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

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

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

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until this registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

Subject to completion, dated April 17, 2023

PROSPECTUS



3,730,608 SHARES

COMMON STOCK

This prospectus relates to the resale of up to 3,730,608 shares of common stock of Carisma Therapeutics Inc. by the selling stockholders identified in this prospectus. We are registering these shares on behalf of the selling stockholders, to be offered and sold by them from time to time. We will not receive any proceeds from the sale of the shares offered by this prospectus.

We have agreed, pursuant to a Registration Rights Agreement that we entered into with the selling stockholders, to bear all of the expenses incurred in connection with the registration of these shares. The selling stockholders will pay or assume underwriting discounts, commissions, fees of underwriters, selling brokers or dealer managers and similar expenses, if any, incurred for the sale of shares of our common stock.

The selling stockholders identified in this prospectus, or their transferees, pledgees, donees or other successors-in-interest, may offer the shares from time to time through public or private transactions at prevailing market prices, at prices related to prevailing market prices or at privately negotiated prices. For additional information on the methods of sale that may be used by the selling stockholders, see the section entitled "Plan of Distribution" in this prospectus.

We may amend or supplement this prospectus from time to time by filing amendments or supplements as required. You should read the entire prospectus, including the documents incorporated by reference in this prospectus, and any amendments or supplements carefully before you make an investment decision.

Our common stock is traded on the Nasdaq Global Market under the symbol "CARM." On April 14, 2023, the closing sale price of our common stock on the Nasdaq Global Market was \$3.56 per share. You are urged to obtain current market quotations for our common stock.

Investing in our common stock involves significant risks. See the information included under "Risk Factors" on page 4 of this prospectus and under similar headings in the documents incorporated by reference in this prospectus for a discussion of the factors you should carefully consider before deciding to purchase shares of our common stock.

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

The information in this prospectus is not complete and may be changed. The selling stockholders named in this prospectus may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and the selling stockholders named in this prospectus are not soliciting offers to buy these securities in any jurisdiction where the offer or sale is not permitted.

The date of this prospectus is

, 2023

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You should rely only on the information contained in or incorporated by reference in this prospectus. We have not authorized anyone to provide you with different or additional information. This prospectus does not constitute an offer to sell or the solicitation of an offer to buy any securities other than the securities described in this prospectus or an offer to sell or the solicitation of an offer to buy such securities in any circumstances in which such offer or solicitation is unlawful. You should assume that the information appearing in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of common stock. Our business, financial condition, results of operations and prospects may have changed materially since such date.

Unless the context otherwise indicates, references in this prospectus to the “Company,” “Carisma,” “we,” “our” and “us” refer, collectively, to Carisma Therapeutics Inc., a Delaware corporation, and its consolidated subsidiaries.

PROSPECTUS SUMMARY

This summary highlights, and is qualified in its entirety by, the more detailed information included elsewhere in this prospectus or incorporated by reference in this prospectus. This summary does not contain all of the information that you should consider before investing in our common stock. You should read and carefully consider the entire prospectus, including the information incorporated by reference in the prospectus, especially the risks of investing in our common stock discussed in the “Risk Factors” section.

Carisma Therapeutics Inc.

Carisma is a clinical stage cell therapy company focused on utilizing its proprietary macrophage and monocyte cell engineering platform to develop transformative immunotherapies to treat cancer and other serious diseases. We have created a comprehensive cell therapy platform to enable the therapeutic use of engineered macrophages and monocytes, which belong to a subgroup of white blood cells called myeloid cells. Macrophages and monocytes are part of the innate immune system and can detect and degrade harmful substances through a process referred to as phagocytosis, in which the harmful substance is engulfed and destroyed and in turn leads to the activation of a broad immune response.

To harness the powerful immunologic functions of macrophages against cancer, we have developed a proprietary Chimeric Antigen Receptor Macrophage, or CAR-M, platform technology. Chimeric antigen receptors, or CARs, are synthetically engineered receptors that are designed to bestow immune cells with the ability to target specific antigens on the surface of cancer cells. By introducing CARs into macrophage and monocyte cells, we aim to redirect their potent innate immune functions against cancer. Our CAR-M platform technology incorporates proprietary tumor targeting constructs vectors to deliver CARs to macrophages and monocytes and novel manufacturing processes. Our CAR-M therapeutics are designed to infiltrate the solid tumor microenvironment, kill cancer cells via targeted phagocytosis, and activate other immune cells, such as T-cells, to initiate a robust anti-tumor immune response.

Our lead product candidate CT-0508, the first CAR-M to be evaluated in a human clinical trial, is an *ex vivo* autologous cell therapy product candidate, wherein immune cells from blood drawn from a patient are engineered outside of the body and reinfused into the same patient. CT-0508 is intended to treat solid tumors that overexpress HER2, a protein that is overexpressed on the surface of a variety of solid tumors, including breast cancer, gastric cancer, esophageal cancer, salivary gland cancer, and numerous others. Beyond CT-0508, we have a broad pipeline of cell therapy assets in various stages of pre-clinical development. In addition to the development of *ex vivo* CAR-M cell therapies, we are also developing *in vivo* CAR-M gene therapies, wherein immune cells are directly engineered within the patient’s body.

Corporate Information

We were incorporated under the laws of the state of Delaware on February 25, 2008 under the name NewCo LS14, Inc. We subsequently changed our name to DeNovo Therapeutics, Inc. in September 2008, to Eleven Biotherapeutics, Inc. in February 2010, to Sesen Bio, Inc. in May 2018 and to Carisma Therapeutics Inc. in March 2023, in connection with the completion of the Merger (as defined below).

Our principal executive offices are located at 3675 Market Street, Suite 200, Philadelphia, Pennsylvania 19104, and our telephone number is (267) 491-6422. Our website address is www.carismatx.com. The information contained on, or that can be accessed through, our website is not a part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

Private Placement

On March 7, 2023, we completed a business combination in accordance with the terms of the Agreement and Plan of Merger and Reorganization, dated as of September 20, 2022, as subsequently amended, by and among the Company, CTx Operations, Inc. (formerly CARISMA Therapeutics Inc.), or Legacy Carisma, and Seahawk Merger Sub, Inc., a Delaware corporation and a wholly owned subsidiary of the Company, or Merger Sub, pursuant to which, among other matters, Merger Sub merged with and into Legacy Carisma, with Legacy Carisma continuing as a wholly owned subsidiary of the Company and the surviving corporation of the merger, or the Merger. As of the effective time of the Merger, we changed our name from “Sesen

Bio, Inc.” to “Carisma Therapeutics Inc.” and the business conducted by the Company became primarily the business conducted by Legacy Carisma, as described above.

Immediately prior to the effective time of the Merger, Legacy Carisma issued an aggregate of 1,964,101 shares of Legacy Carisma common stock for an aggregate purchase price of approximately \$30.6 million, or the Private Placement, pursuant to an Amended and Restated Subscription Agreement, dated as of December 29, 2022, or the Subscription Agreement, between Legacy Carisma and the selling stockholders. All of the shares of Legacy Carisma common stock held by the selling stockholders immediately prior to the effective time of the Merger, including shares of Legacy Carisma common stock issued in connection with the Private Placement, were exchanged into an aggregate of 3,730,608 shares of the Company’s common stock at the effective time of the Merger.

For a detailed description of the transactions contemplated by the Subscription Agreement with the selling stockholders, see the section entitled “Selling Stockholders” in this prospectus. We filed the registration statement on Form S-3, of which this prospectus forms a part, to fulfill our contractual obligations under the Registration Rights Agreement with the selling stockholders, dated as of March 7, 2023, or the Registration Rights Agreement, entered into concurrently with the consummation of the Private Placement to provide for the resale by the selling stockholders of the shares of common stock acquired pursuant to the Subscription Agreement.

THE OFFERING

Common stock offered by selling
stockholders

3,730,608 shares.

Use of proceeds

We will not receive any proceeds from the sale of shares
in this offering.

Risk Factors

You should read the “Risk Factors” section of this
prospectus for a discussion of factors to consider
carefully before deciding to invest in shares of our
common stock.

Nasdaq Global Market symbol

“CARM”

RISK FACTORS

Investing in our securities involves significant risks. You should carefully consider the risks and uncertainties described in [Exhibit 99.3 to our Current Report on Form 8-K filed with the SEC on March 8, 2023](#), as updated by our subsequent filings, which are incorporated by reference into this prospectus, before deciding whether to purchase shares of our common stock. Each of the risk factors could adversely affect our business, financial condition, results of operations, or prospects, as well as adversely affect the value of an investment in our common stock, and the occurrence of any of these risks might cause you to lose all or part of your investment. Additional risks not presently known to us or that we currently believe are immaterial may also significantly impair our business operations.

FORWARD-LOOKING STATEMENTS

This prospectus and the information incorporated by reference in this prospectus contain certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, the Exchange Act. All statements, other than statements of historical facts, contained in this prospectus and the information incorporated by reference herein, including statements regarding our strategy, future operations, future financial position, future revenues, projected costs, prospects, plans and objectives of management, are forward-looking statements. The words “anticipates”, “believes”, “could”, “estimates”, “expects”, “intends”, “may”, “plans”, “potential”, “predicts”, “projects”, “should”, “will”, “would” and the negative version of these words and other similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Such forward-looking statements are subject to various risks and uncertainties. Accordingly, there are or will be important factors that could cause actual outcomes or results to differ materially from those indicated in these statements.

The forward-looking statements in this prospectus and the documents incorporated by reference in the prospectus include, among other things, the statements about:

- the timing and conduct of our ongoing Phase 1 clinical trial of CT-0508 and our planned clinical trial utilizing CT-0508 in combination with pembrolizumab;
- the timing and conduct of our planned clinical trial of CT-0525 for solid tumors that overexpress HER2;
- the timing and conduct of our planned clinical trial of CT-1119 for advanced mesothelin-positive solid tumors;
- the timing and conduct of our planned clinical trial of CT-0729 for prostate-specific membrane antigen positive castrate resistant prostate cancer;
- our ability to replicate in later clinical trials positive results found in preclinical studies and early-stage clinical trials of our product candidates;
- our plans to conduct discovery and pre-clinical testing of the development of in vivo CAR-M therapeutics for up to twelve oncology targets, as well as multiple other targets and indications;
- our ability to successfully enroll patients in and complete clinical trials;
- our plans to conduct discovery and pre-clinical testing of other product candidates;
- our ability to realize the anticipated benefits of our research and development programs, strategic partnerships, research and licensing programs and academic and other collaborations;
- the timing of applying for and receiving, and our ability to maintain, marketing approvals from applicable regulatory authorities for our product candidates;
- our ability to obtain and maintain intellectual property protection and regulatory exclusivity for CT-0508 and any other product candidates we are developing or may develop in the future;
- acceptance of CT-0508 and any other product candidates, if and when approved, by patients, the medical community and third-party payors;
- our expectations regarding our ability to fund our operating expenses and capital expenditure requirements with our cash, cash equivalents and short-term investments;
- the potential advantages of our product candidates;
- our estimates regarding the potential market opportunity for our product candidates;
- our commercialization and manufacturing capabilities and strategy;
- the impact of COVID-19 on our business and operations;
- our estimates regarding expenses, future revenue, capital requirements and needs for additional financing;

- our competitive position;
- the impact of government laws and regulations;
- our ability to recognize the benefits of the Merger and the effect the completion of the Merger will have on our business relationships, operating results and business generally;
- the receipt of any payments under the contingent value rights issued to our stockholders in connection with the closing of the Merger, the realization of value for Sesen Bio, Inc. legacy assets and the amount and timing of distributions to be made to our stockholders, if any; and
- political and economic developments.

Forward-looking statements inherently involve known and unknown risks, uncertainties, and other factors, which 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. You are cautioned that these forward-looking statements are only predictions and are subject to risks, uncertainties and assumptions. You should carefully review the risk factors and cautionary statements described in the other documents we file from time to time with the SEC, specifically [Exhibit 99.3 to our Current Report on Form 8-K filed with the SEC on March 8, 2023](#), as updated by our Annual Report on Form 10-K, our Quarterly Reports on Form 10-Q and our other Current Reports on Form 8-K.

You should read this prospectus and the documents incorporated by reference in this prospectus and the documents we have filed as exhibits to the registration statement of which this prospectus is a part completely and with the understanding that our actual future results may be materially different from what we expect. The forward-looking statements contained in this prospectus are made as of the date of this prospectus, and we do not assume any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by applicable law.

USE OF PROCEEDS

We are not selling any securities under this prospectus and we will not receive any proceeds from the sale of shares by the selling stockholders.

The selling stockholders will pay any underwriting discounts, commissions, fees of underwriters, selling brokers or dealer managers and expenses incurred by the selling stockholders for brokerage, accounting, tax or legal services or any other expenses incurred by the selling stockholders in disposing of the shares. We will bear all other costs, fees and expenses incurred in effecting the registration of the shares covered by this prospectus, including, without limitation, all registration and filing fees, printing fees, Nasdaq listing fees and fees and expenses of our counsel and our accountants.

SELLING STOCKHOLDERS

On March 7, 2023, we completed the Merger. As of the effective time of the Merger, we changed our name from “Sesen Bio, Inc.” to “Carisma Therapeutics Inc.” and the business conducted by the Company became primarily the business conducted by Legacy Carisma, as described above.

Immediately prior to the effective time of the Merger, Legacy Carisma issued an aggregate of 1,964,101 shares of Legacy Carisma common stock to the selling stockholders in the Private Placement pursuant to the Subscription Agreement at a purchase price of \$15.60 per share of Legacy Carisma common stock, for an aggregate purchase price of approximately \$30.6 million. The Private Placement was effected pursuant to an exemption from registration afforded by Section 4(a)(2) of the Securities Act. At the effective time of the Merger, the shares purchased by the selling stockholders in the Private Placement were exchanged for 3,730,608 shares of our common stock in the aggregate, based on the exchange ratio set forth in the Merger Agreement.

In connection with the closing of the Private Placement, we entered into the Registration Rights Agreement, pursuant to which we agreed to, as promptly as reasonably practicable and in any event within 60 days after the date of the Registration Rights Agreement, file a registration statement on Form S-3 with the SEC covering the resale of the shares of common stock sold in the Private Placement, or the Registrable Subscription Securities. We will use our reasonable best efforts to have the registration statement on Form S-3 declared effective by the SEC and maintain such effectiveness continuously for a period up to the earlier of (i) three years from the date of the Registration Rights Agreement and (ii) the date that all Registrable Subscription Securities covered by the registration statement on Form S-3 have been sold or can be sold without restriction pursuant to Rule 144 promulgated by the SEC under the Securities Act, or SEC Rule 144, or another similar exemption under the Securities Act and without the requirement to be in compliance with subsection (c)(1) of SEC Rule 144 (or any successor thereto). The Registration Rights Agreement includes customary indemnification rights in connection with the registration statement. We filed the registration statement on Form S-3, of which this prospectus forms a part, to fulfill our contractual obligations under the Registration Rights Agreement.

The foregoing summary descriptions of the Subscription Agreement and the Registration Rights Agreement do not purport to be complete and are qualified in their entirety by reference to the full text of such documents, which are filed as exhibits to the registration statement of which this prospectus is a part and are incorporated by reference herein.

The table below sets forth, to our knowledge, information concerning the beneficial ownership of shares of our common stock by the selling stockholders after closing of the Merger as of March 7, 2023. The information in the table below with respect to the selling stockholders has been obtained from the selling stockholders. When we refer to the “selling stockholders” in this prospectus, we mean the selling stockholders listed in the table below as offering shares, as well as their respective transferees, pledgees or donees or other successors-in-interest. The selling stockholders may sell all, some or none of the shares of common stock subject to this prospectus. See “Plan of Distribution.”

The number of shares of common stock beneficially owned prior to the offering for each selling stockholder includes (i) all shares of common stock held by such selling stockholder as of March 7, 2023, (ii) all shares as to which such selling stockholder has the right to acquire within 60 days of March 7, 2023 and (iii) all shares of common stock purchased by such selling stockholder in the Private Placement. The percentages of shares owned before and after the offering are based on 40,254,666 shares of common stock outstanding as of March 7, 2023, which includes the outstanding shares of common stock offered by this prospectus. In computing the number of shares of common stock beneficially owned by a person and the percentage ownership of that person, we deemed outstanding shares of common stock issuable upon the exercise of options held by that selling stockholder that are exercisable within 60 days of March 7, 2023. We did not deem these shares outstanding, however, for the purpose of computing the percentage ownership of any other person.

Beneficial ownership is determined in accordance with the rules of the SEC and includes voting or investment power with respect to shares. Unless otherwise indicated below, to our knowledge, each selling stockholder named in the table has sole voting and investment power with respect to the shares of common

stock beneficially owned by it, except to the extent authority is shared by spouses under applicable law. The inclusion of any shares in this table does not constitute an admission of beneficial ownership for any selling stockholder named below.

Name of Selling Stockholder	Shares of Common Stock Beneficially Owned Prior to Offering		Number of Shares of Common Stock Being Offered	Shares of Common Stock to be Beneficially Owned After Offering ⁽¹⁾	
	Number	Percentage		Number	Percentage
Healthcap VII L.P. ⁽²⁾	3,398,248	8.44%	575,907	2,822,341	7.01%
AbbVie Biotechnology Ltd. ⁽³⁾	2,749,855	6.83%	462,674	2,287,181	5.68%
Wellington Life Sciences V GmbH & Co. KG ⁽⁴⁾	2,297,546	5.71%	401,795	1,895,751	4.71%
Symbiosis II, LLC ⁽⁵⁾	2,215,877	5.50%	389,620	1,826,257	4.54%
The Trustees of the University of Pennsylvania ⁽⁶⁾	2,182,812	5.42%	340,917	1,841,895	4.58%
TPG Biotechnology Partners V L.P. ⁽⁷⁾	1,684,062	4.18%	85,229	1,598,833	3.97%
MRL Ventures Fund LLC ⁽⁸⁾	1,473,240	3.66%	304,390	1,168,850	2.90%
Agent Capital Fund I LP ⁽⁹⁾	1,126,241	2.80%	91,317	1,034,924	2.57%
Aju Life Science 3.0 Venture Fund ⁽¹⁰⁾	718,332	1.78%	109,580	608,752	1.51%
Livzon International Ventures I ⁽¹¹⁾	718,332	1.78%	109,580	608,752	1.51%
Pictet Thematic Private Equity, SICAV-RAIF – Pictet Thematic Private Equity – Health Fund I ⁽¹²⁾	669,660	1.66%	669,660	—	—
b-to-v Partners S.à r.l. ⁽¹³⁾	654,001	1.62%	109,580	544,421	1.35%
4BIO Ventures II LP ⁽¹⁴⁾	445,628	1.11%	80,359	365,269	*

* Less than 1%

- (1) We do not know when or in what amounts a selling stockholder may offer shares for sale. The selling stockholders might not sell any or might sell all of the shares offered by this prospectus. Because the selling stockholders may offer all or some of the shares pursuant to this offering, and because there are currently no agreements, arrangements or understandings with respect to the sale of any of the shares, we cannot estimate the number of the shares that will be held by the selling stockholders after completion of the offering. However, for purposes of this table, we have assumed that, after completion of the offering, none of the shares covered by this prospectus will be held by the selling stockholders.
- (2) Consists of (i) 575,907 shares issued to Healthcap VII L.P. in the Private Placement and (ii) 2,822,341 additional shares held by Healthcap VII L.P. HealthCap VII GP SA, a Swiss registered L.C.C., is the sole general partner of HealthCap VII, L.P. and has voting and investment control over the shares. HealthCap VII GP SA disclaims beneficial ownership of all shares held by HealthCap VII L.P., except to the extent of their pecuniary interest therein. Fabrice Bernhard is the General Manager of HealthCap VII GP SA. Dag Richter, Daniel Schafer and Frans Wuite are each Directors of HealthCap VII GP SA. Each of Messrs. Bernhard, Richter, Schafer and Wuite may be deemed to share voting and investment power with respect to the shares held by HealthCap VII L.P. and disclaim beneficial ownership of all shares held by HealthCap VII L.P., except to the extent of their pecuniary interest therein. Björn Odlander is a Managing Partner of VII Advisor AB, an affiliate of Healthcap VII L.P., and is a member of our board of directors. Dr. Odlander disclaims beneficial ownership of all shares held by HealthCap VII L.P. except to the extent of his pecuniary interest therein, if any. The business address of HealthCap VII L.P. is c/o HealthCap VII GP SA, Avenue Villamont 23, CH 1005 Lausanne Switzerland.
- (3) Consists of (i) 462,674 shares issued to AbbVie Biotechnology Ltd. in the Private Placement and (ii) 2,287,181 additional shares held by AbbVie Biotechnology Ltd. AbbVie Biotechnology Ltd. holds voting and investment control over the shares. The Board of Directors of AbbVie Biotechnology Ltd. consists of Lindsey Bristow, Jonathan C. Clipper, Stephen Muldoon and Arthur Price. Each of Ms. Bristow and each of Messrs. Clipper, Muldoon and Price may be deemed to share voting and

- investment power with respect to the shares held by AbbVie Biotechnology Ltd. and disclaim beneficial ownership of all shares held by AbbVie Biotechnology Ltd., except to the extent of their pecuniary interest therein, if any. The business address of AbbVie Biotechnology Ltd. is Thistle House, 4 Burnaby Street, Hamilton HM 11, Bermuda.
- (4) Consists of (i) 401,795 shares issued to Wellington Life Sciences V GmbH & Co. KG, or the Wellington Fund, in the Private Placement and (ii) 1,895,751 additional shares held by the Wellington Fund. The Wellington Fund is represented by Wellington Life Sciences Venture Capital Consulting GmbH, or the Wellington General Partner. The Wellington General Partner holds voting and investment control over the shares. Dr. Regina Hodits and Dr. Rainer Strohmenger, in their functions as managing directors of the Wellington General Partner, have individual signatory power as well as voting and/or investment control over the shares. Dr. Regina Hodits is a member of our board of directors. Dr. Regina Hodits disclaims beneficial ownership of all shares held by the Wellington Fund except to the extent of her pecuniary interest therein, if any. The business address of the Wellington Fund and the Wellington General Partner is Tuerkenstrasse 5, 80333 Munich, Germany.
- (5) Consists of (i) 389,620 shares issued to Symbiosis II, LLC in the Private Placement and (ii) 1,826,257 additional shares held by Symbiosis II, LLC, which exercises voting and investment control of the shares. Chidozie Ugwumba is the Managing Partner of Symbiosis II, LLC and as such has sole voting and investment control over the shares. Mr. Ugwumba is also a member of our board of directors. The business address of Symbiosis II, LLC is 609 S.W. 8th Street, Suite 365, Bentonville, Arkansas 72712.
- (6) Consists of (i) 340,917 shares issued to The Trustees of the University of Pennsylvania in the Private Placement and (ii) 1,841,895 additional shares held by The Trustees of the University of Pennsylvania. The Board of Trustees of the University of Pennsylvania has voting and dispositive power over the shares. The Board of Trustees of the University of Pennsylvania is comprised of more than three individuals who have authority over the voting and disposition of the shares. A business address of The Trustees of the University of Pennsylvania is 2929 Walnut Street, Suite 300, Philadelphia, Pennsylvania 19104.
- (7) Consists of (i) 85,229 shares issued to TPG Biotechnology Partners V, L.P., a Delaware limited partnership, in the Private Placement and (ii) 1,598,833 additional shares held by TPG Biotechnology Partners V, L.P. The general partner of TPG Biotechnology Partners V, L.P. is TPG Biotechnology GenPar V, L.P., a Delaware limited partnership, whose general partner is TPG Biotech GenPar V Advisors, LLC, a Delaware limited liability company, whose sole member is TPG Operating Group I, L.P., a Delaware limited partnership, whose general partner is TPG Holdings I-A, LLC, a Delaware limited liability company, whose managing member is TPG GPCo, LLC, a Delaware limited liability company, whose managing member is TPG Inc., a Delaware corporation, whose shares of Class B common stock (which represent a majority of the combined voting power of the common stock) are held by TPG Group Holdings (SBS), L.P., a Delaware limited partnership, whose general partner is TPG Group Holdings (SBS) Advisors, LLC, a Delaware limited liability company, whose managing member is TPG GP A, LLC, a Delaware limited liability company, which is owned by entities owned by David Bonderman, James G. Coulter and Jon Winkelried. Messrs. Bonderman, Coulter and Winkelried may therefore be deemed to share voting and investment power with respect to, and thus beneficially own the securities directly held by TPG Biotechnology Partners V, L.P. Messrs. Bonderman, Coulter and Winkelried disclaim beneficial ownership of the securities directly held by TPG Biotechnology Partners V, L.P. except to the extent of their pecuniary interest therein. The address of each of TPG GP A, LLC and Messrs. Bonderman, Coulter and Winkelried is 301 Commerce Street, Suite 3300, Fort Worth, Texas 76102.
- (8) Consists of (i) 304,390 shares issued to MRL Ventures Fund LLC in the Private Placement and (ii) 1,168,850 additional shares held by MRL Ventures Fund LLC. MRL Ventures Fund, LLC holds investment and voting control over the shares. Peter Dudek, Sunil Patel, Dean Li, Caroline Litchfield, Eliav Barr and George Adonna are members of the investment committee of MRL Ventures Fund, LLC. Each of Messrs. Dudek, Patel, Li, Miletich, Litchfield, Barr and Adonna may be deemed to share voting and investment power with respect to the shares held by MRL Ventures Fund, LLC and disclaim beneficial ownership of all shares held by MRL Ventures Fund, LLC, except to the extent of their pecuniary interest therein. The business address of MRL Ventures Fund, LLC is One Merck Drive, Whitehouse Station, New Jersey 08889.

- (9) Consists of (i) 91,317 shares issued to Agent Capital Fund I LP in the Private Placement and (ii) 1,034,924 additional shares held by Agent Capital Fund I LP. Agent Capital Fund I LP is a Delaware limited partnership whose general partner is Agent Capital Fund I GP, LLC, or ACGPI, a Delaware limited liability company. Geeta Vemuri is the managing member of ACGPI and exercises voting and investment power with respect to the shares owned by Agent Capital Fund I LP. ACGPI and Ms. Vemuri disclaim beneficial ownership of all shares held by Agent Capital Fund I LP, except to the extent of their respective pecuniary interests therein. The address of each of Agent Capital Fund I LP, ACGPI and Ms. Vemuri is 1400 Main Street, Floor 1, Waltham, MA 02451.
- (10) Consists of (i) 109,580 shares issued to Aju Life Science 3.0 Venture Fund in the Private Placement and (ii) 608,752 additional shares held by Aju Life Science 3.0 Venture Fund. Aju IB Investment is the general partner of Aju Life Science 3.0 Venture Fund, and Solasta Ventures is a subsidiary of Aju IB Investment. Derek Yoon in his capacity as President and Chief Executive Officer of Solasta Ventures and Ji-won Kim in his capacity as Chief Executive Officer of Aju IB Investment have sole voting and investment control over the shares. Mr. Yoon and Mr. Kim. disclaim beneficial ownership of all shares held by Aju Life Science 3.0 Venture Fund, except to the extent of their pecuniary interest therein, if any. The address of Aju Life Science 3.0 Venture Fund is 201 Teheran-ro, Floor, Gangnam-gu, Seoul, Korea 06141.
- (11) Consists of (i) 109,580 shares issued to Livzon International Ventures I in the Private Placement and (ii) 608,752 additional shares held by Livzon International Ventures I. Livzon Pharmaceutical Group Inc. (SHE: 000513, HK: 01513), whose outstanding shares are publicly-held and listed on the Shenzhen Stock Exchange and the HongKong Stock Exchange, wholly owns Livzon International Ventures I. The address of Livzon International Ventures I is PO Box 309, Uglan House, Grand Cayman, KY1-1104, Cayman Islands.
- (12) Consists of shares issued to Pictet Thematic Private Equity, SICAV-RAIF — Pictet Thematic Private Equity — Health Fund I, or Pictet, in the Private Placement. Jens Hoellermann, Francesco Ilardi, Aurélien Favier and Yves Kuhn may be deemed to have voting and dispositive power over the shares held by Pictet. The address for each of Messrs. Jens Hoellermann, Francesco Ilardi, Aurélien Favier and Yves Kuhn is 15 Avenue J.F. Kennedy, L-1855 Luxembourg.
- (13) Consists of (i) 109,580 shares issued to b-to-v Partners S.à r.l. in the Private Placement and (ii) 544,421 additional shares held by b-to-v Partners S.à r.l. Dr. Christian Schütz and Florian Schweitzer, each in their capacity as Managing Directors of b-to-v Partners S.à r.l., have sole voting and investment control over the shares. Dr. Schütz and Mr. Schweitzer disclaim beneficial ownership of all shares held by b-to-v Partners S.à r.l., except to the extent of their pecuniary interest therein, if any. The address of b-to-v Partners S.à r.l. is 1c, rue Gabriel Lippmann, 5365 Munsbach, Luxembourg.
- (14) Consists of (i) 80,359 shares issued to 4BIO Ventures II LP in the Private Placement and (ii) 365,269 additional shares held by 4BIO Ventures II LP. 4BIO Ventures II GP Ltd, the general partner of 4BIO Ventures II LP, has voting and investment control with respect to the shares. Andrey Kozlov, Dmitry Kuzmin and Kieran Mudryy in their functions as directors of 4BIO Ventures II GP Ltd, have individual signatory power as well as voting and/or investment control over the shares. The address of 4BIO Ventures II LP is 78 Pall Mall, London SW1Y 5ES United Kingdom.

Relationships with Selling Stockholders

Board of Directors

Björn Odlander, who is a member of our board of directors, is Managing Partner of HealthCap VII Advisor AB, an affiliate of Healthcap VII L.P., which is a selling stockholder. Chidozie Ugwumba, who is a member of our board of directors, is the Managing Partner of Symbiosis II, LLC, which is a selling stockholder. Dr. Regina Hodits, who is a member of our board of directors, is a director of Wellington General Partner, an affiliate of the Wellington Fund, which is a selling stockholder. Margarita Chavez, who was a former director of Legacy Carisma until March 7, 2023, is employed as a Managing Director of AbbVie Ventures, an affiliate of AbbVie Biotechnology Ltd., which is a selling stockholder.

Series A Convertible Preferred Stock Financing

In June 2018, November 2018 and March 2020, Legacy Carisma and CARISMA Therapeutics S.à r.l., a société à responsabilité limitée organized under the laws of Luxembourg and a subsidiary of Legacy

Carisma, or Carisma Europe, as applicable, issued and sold an aggregate of 5,201,017 shares of the Legacy Carisma Series A preferred stock, \$0.0001 par value per share and an aggregate of 937,501 Class B Shares, with a nominal value of one tenth of one eurocent (EUR 0.001), of Carisma Europe, or the Class B exchangeable shares, of which (i) 4,701,925 shares of Series A preferred stock and all of the Class B exchangeable shares were sold at a price per share of \$10.40 in cash, for an aggregate purchase price of \$58,650,030.40 and (ii) 499,092 shares of Legacy Carisma Series A preferred stock were sold at a price per share of \$8.06 against payment by cancellation or conversion of indebtedness of Legacy Carisma to the applicable purchaser, including interest. Legacy Carisma also issued one share of Special Voting Preferred Stock of Legacy Carisma, \$0.0001 par value per share, to the holder of the Class B exchangeable shares, which share was automatically cancelled when the Class B exchangeable shares were exchanged for capital stock of Legacy Carisma immediately prior to the effective time of the Merger. All of the shares of Legacy Carisma preferred stock held by the selling stockholders were exchanged for shares of the Company's common stock at the effective time of the Merger. The following selling stockholders participated in the Series A convertible preferred stock financing: AbbVie Biotechnology Ltd., Agent Capital Fund I LP, b-to-v Partners S.à r.l., Healthcap VII L.P., MRL Ventures Fund LLC, The Trustees of the University of Pennsylvania, TPG Biotechnology Partners V L.P. and Wellington Life Sciences V GmbH & Co. KG.

Series B Convertible Preferred Stock Financing

In December 2020 and February 2021, Legacy Carisma and Carisma Europe, as applicable, issued and sold an aggregate of 3,499,866 shares of the Legacy Carisma Series B preferred stock, \$0.0001 par value per share and an aggregate of 297,764 Class B-1 Shares, with a nominal value of one tenth of one eurocent (EUR 0.001), of Carisma Europe, or the Class B-1 exchangeable shares, all of which were sold at a price per share of \$15.60 in cash, for an aggregate purchase price of \$59,243,028.00. Legacy Carisma also issued one share of Legacy Carisma Series B special voting preferred stock, \$0.0001 par value per share, to the holder of the Class B-1 exchangeable shares, which share was automatically cancelled when the Class B-1 exchangeable shares were exchanged for capital stock of Legacy Carisma immediately prior to the effective time of the Merger. All of the shares of Legacy Carisma preferred stock held by the selling stockholders were exchanged for shares of the Company's common stock at the effective time of the Merger. The following selling stockholders participated in the Series B convertible preferred stock financing: 4BIO Ventures II LP, AbbVie Biotechnology Ltd., Agent Capital Fund I LP, Aju Life Science 3.0 Venture Fund, b-to-v Partners S.à r.l., Healthcap VII L.P., Livzon International Ventures I, MRL Ventures Fund LLC, Symbiosis II, LLC, The Trustees of the University of Pennsylvania, TPG Biotechnology Partners V L.P. and Wellington Life Sciences V GmbH & Co. KG.

Investor Rights Agreement

In December 2020, Legacy Carisma and Carisma Europe entered into an amended and restated investor rights agreement, or the Investor Rights Agreement, with certain holders of Legacy Carisma common stock, the Series A preferred stock, Series B preferred stock, Class B exchangeable shares and Class B-1 exchangeable shares, including certain holders of 5% of Legacy Carisma's capital stock, and including certain affiliates of Legacy Carisma's directors and their affiliates. The Investor Rights Agreement provided such holders with certain registration rights, including the right to demand that Legacy Carisma file a registration statement or request that their shares be covered by a registration statement that Legacy Carisma is otherwise filing. The Investor Rights Agreement also provided certain major investors with certain information and observer rights. The Investor Rights Agreement was terminated in connection with the closing of the Merger. The following selling stockholders were party to the Investor Rights Agreement: 4BIO Ventures II LP, AbbVie Biotechnology Ltd., Agent Capital Fund I LP, Aju Life Science 3.0 Venture Fund, b-to-v Partners S.à r.l., Healthcap VII L.P., Livzon International Ventures I, MRL Ventures Fund LLC, Symbiosis II, LLC, The Trustees of the University of Pennsylvania, TPG Biotechnology Partners V L.P. and Wellington Life Sciences V GmbH & Co. KG.

Voting Agreement

In December 2020, Legacy Carisma and Carisma Europe entered into an amended and restated voting agreement, or the Voting Agreement, with certain holders of Legacy Carisma common stock, Series A preferred stock, Series B preferred stock, Class B exchangeable shares and Class B-1 exchangeable shares,

including certain holders of 5% of Legacy Carisma’s capital stock, and including certain of Legacy Carisma’s directors and their affiliates. Pursuant to the Voting Agreement, such holders party thereto agreed to vote their shares in favor of the election of certain directors and specified transactions approved by the requisite majority of the shares of voting capital stock held by such holders. The Voting Agreement was terminated in connection with the closing of the Merger. The following selling stockholders were party to the Voting Agreement: 4BIO Ventures II LP, AbbVie Biotechnology Ltd., Agent Capital Fund I LP, Aju Life Science 3.0 Venture Fund, b-to-v Partners S.à r.l., Healthcap VII L.P., Livzon International Ventures I, MRL Ventures Fund LLC, Symbiosis II, LLC, The Trustees of the University of Pennsylvania, TPG Biotechnology Partners V L.P. and Wellington Life Sciences V GmbH & Co. KG.

Right of First Refusal and Co-Sale Agreement

In December 2020, Legacy Carisma entered into an amended and restated right of first refusal and co-sale agreement, or the ROFR Agreement, with certain holders of Legacy Carisma common stock, the Series A preferred stock, Series B preferred stock, Class B exchangeable shares and Class B-1 exchangeable shares, including certain holders of 5% of its capital stock, and including certain of Legacy Carisma’s directors and their affiliates. Pursuant to the ROFR Agreement, Legacy Carisma had a right of first refusal in respect of certain sales of securities by certain holders of its capital stock. To the extent Legacy Carisma did not exercise such right in full, certain holders of its capital stock were granted certain rights of first refusal and co-sale in respect of such sales. The ROFR Agreement was terminated in connection with the closing of the Merger. The following selling stockholders were party to the ROFR Agreement: 4BIO Ventures II LP, AbbVie Biotechnology Ltd., Agent Capital Fund I LP, Aju Life Science 3.0 Venture Fund, b-to-v Partners S.à r.l., Healthcap VII L.P., Livzon International Ventures I, MRL Ventures Fund LLC, Symbiosis II, LLC, The Trustees of the University of Pennsylvania, TPG Biotechnology Partners V L.P. and Wellington Life Sciences V GmbH & Co. KG.

Share Exchange and Voting Agreement

In December 2020, Legacy Carisma and Carisma Europe entered into an amended and restated share exchange and voting agreement, or the Share Exchange Agreement, with certain holders of the Series A preferred stock, Series B preferred stock, Class B exchangeable shares and Class B-1 exchangeable shares, including certain holders of 5% of its capital stock, and including certain of Legacy Carisma’s directors and their affiliates. The Share Exchange Agreement provided for the exchange of the Class B exchangeable shares and Class B-1 exchangeable shares for shares of Series A preferred stock and Series B preferred stock, respectively, either voluntarily or automatically, upon certain circumstances as set forth therein. In connection with the closing of the Merger, the Class B exchangeable shares and Class B-1 exchangeable shares were exchanged into Legacy Carisma preferred stock, and the Share Exchange Agreement terminated. The following selling stockholders were party to the Share Exchange Agreement: 4BIO Ventures II LP, AbbVie Biotechnology Ltd., Agent Capital Fund I LP, Aju Life Science 3.0 Venture Fund, b-to-v Partners S.à r.l., Healthcap VII L.P., Livzon International Ventures I, MRL Ventures Fund LLC, Symbiosis II, LLC, The Trustees of the University of Pennsylvania, TPG Biotechnology Partners V L.P. and Wellington Life Sciences V GmbH & Co. KG.

University of Pennsylvania License Agreement

In November 2017, Legacy Carisma entered into a license agreement with the Trustees of the University of Pennsylvania, or Penn, which was amended in February 2018, January 2019, March 2020 and June 2021, or the Penn License Agreement. Pursuant to the Penn License Agreement, Legacy Carisma is responsible for paying Penn an annual license maintenance fee in the low tens of thousands of dollars, payable until Legacy Carisma’s first payment of a royalty. Legacy Carisma is required to pay Penn up to \$10.9 million per product in development and regulatory milestone payments, up to \$30.0 million per product in commercial milestone payments, and up to an additional \$1.7 million in development and regulatory milestone payments for the first CAR-M product directed to mesothelin. As of April 17, 2023, Penn is a holder of 5% or more of our voting securities and a selling stockholder.

DESCRIPTION OF CAPITAL STOCK

The following description of our capital stock is intended as a summary only and therefore is not a complete description of our capital stock. This description is based upon, and is qualified by reference to, our Restated Certificate of Incorporation, or certificate of incorporation, our Amended and Restated By-laws, or by-laws, and applicable provisions of Delaware corporate law. You should read our certificate of incorporation and by-laws, which are filed as exhibits to the registration statement of which this prospectus forms a part, for the provisions that are important to you.

Our authorized capital stock consists of 100,000,000 shares of common stock and 5,000,000 shares of preferred stock.

Common Stock

Annual Meeting. Annual meetings of our stockholders are held on the date designated in accordance with our by-laws. Written notice must be mailed to each stockholder entitled to vote not less than ten nor more than 60 days before the date of the meeting. The presence in person or by proxy of the holders of record of a majority of our issued and outstanding shares entitled to vote at such meeting constitutes a quorum for the transaction of business at meetings of the stockholders. Special meetings of the stockholders may be called at any time only by the board of directors, stating the purpose of such meeting. Except as may be otherwise provided by applicable law, our certificate of incorporation or our by-laws, all elections shall be decided by a plurality, and all other questions shall be decided by a majority, of the votes cast by stockholders entitled to vote thereon at a duly held meeting of stockholders at which a quorum is present.

Voting Rights. Each holder of common stock is entitled to one vote for each share held of record on all matters to be voted upon by stockholders, including the election of directors. Our certificate of incorporation and by-laws do not provide for cumulative voting rights. Except as otherwise provided by law, our certificate of incorporation and by-laws, in all matters other than the election of directors, the affirmative vote of the majority of the shares present in person or represented by proxy at a meeting at which a quorum is present and entitled to vote on the subject matter shall be the act of the stockholders. Directors shall be elected by a plurality of the shares present in person or represented by proxy at a meeting at which a quorum is present and entitled to vote on the election of directors.

Dividends. Subject to the rights, powers and preferences of any outstanding preferred stock, and except as provided by law or in our certificate of incorporation, dividends may be declared and paid or set aside for payment on the common stock out of legally available assets or funds when and as declared by the board of directors. The payment of dividends is contingent upon our revenue and earnings, capital requirements, and general financial condition, as well as contractual restrictions and other considerations deemed to be relevant by our board of directors.

Liquidation, Dissolution and Winding Up. Subject to the rights, powers and preferences of any outstanding preferred stock, in the event of our liquidation, dissolution or winding up, our net assets will be distributed pro rata to the holders of our common stock.

Other Rights.

Holders of the common stock have no right to:

- convert the stock into any other security;
- have the stock redeemed;
- purchase additional stock; or
- maintain their proportionate ownership interest.

Holders of shares of the common stock are not required to make additional capital contributions.

Transfer Agent and Registrar. Computershare Trust Company, N.A. is transfer agent and registrar for the common stock.

Preferred Stock

Our board of directors is authorized to issue up to 5,000,000 shares of preferred stock in one or more series, with such rights, preferences and privileges as shall be determined by our board of directors. The rights, preferences and privileges of the holders of our common stock are subject to, and may be adversely affected by, the rights of shares of any series of our preferred stock that we may classify and issue in the future.

Provisions of Our Certificate of Incorporation and By-laws and Delaware Law That May Have Anti-Takeover Effects

Certain provisions of our certificate of incorporation and by-laws may have the effect of making it more difficult for a third party to acquire, or of discouraging a third party from attempting to acquire, control of us. Such provisions could limit the price that certain investors might be willing to pay in the future for shares of our common stock and may limit the ability of stockholders to remove current management or directors or approve transactions that stockholders may deem to be in their best interest and, therefore, could adversely affect the price of our common stock.

No Cumulative Voting. The Delaware General Corporation Law, or the DGCL, provides that stockholders are not entitled to the right to accumulate votes in the election of directors unless our certificate of incorporation provides otherwise. Our certificate of incorporation does not provide for cumulative voting.

Board of Directors. Our certificate of incorporation and by-laws provide for a board of directors divided as nearly equally as possible into three classes. Each class is elected to a term expiring at the annual meeting of stockholders held in the third year following the year of such election. The number of directors comprising our board of directors is fixed from time to time by the board of directors.

Removal of Directors by Stockholders. Delaware law provides that members of our board of directors may only be removed for cause by a vote of the holders of at least seventy-five percent (75%) of the outstanding shares entitled to vote on the election of the directors.

Board Vacancies Filled Only by Majority of Directors Then in Office. Vacancies and newly created seats on our board may be filled only by a vote of a majority of our board of directors. Further, only our board of directors may determine the number of directors on our board. The inability of stockholders to determine the number of directors or to fill vacancies or newly created seats on the board makes it more difficult to change the composition of our board of directors.

Stockholder Nomination of Directors. Our by-laws provide that a stockholder must notify us in writing of any stockholder nomination of a director not earlier than, the 120th day and not later than on the 90th day prior to the first anniversary of the preceding year's annual meeting; provided, that if the date of the annual meeting is advanced or delayed by more than 30 days from such anniversary date, notice by the stockholder to be timely must be so delivered not earlier than the 120th day prior to the date of such annual meeting and not later than on the later of (x) the 90th day prior to the date of such meeting and (y) the 10th day following the day on which public announcement of the date of such annual meeting is first made by us.

No Action By Written Consent. Our certificate of incorporation provides that our stockholders may not act by written consent and may only act at duly called meetings of stockholders.

Undesignated Preferred Stock. As discussed above, our board of directors has the ability to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change control of our company. These and other provisions may have the effect of deferring hostile takeovers or delaying changes in control or management of us.

Super-Majority Voting. The Delaware law provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or bylaws unless a corporation's certificate of incorporation or bylaws, as the case may be, requires a greater percentage. Our by-laws may be amended or repealed by a majority vote of our board of directors or the affirmative vote of the holders of at least 75% of the votes that all our stockholders would be entitled

to cast in any annual election of directors. In addition, the affirmative vote of the holders of at least 75% of the votes that all our stockholders would be entitled to cast in any election of directors is required to amend or repeal or to adopt any provisions inconsistent with any of the provisions of our certificate of incorporation described above.

These provisions of Delaware law, our certificate of incorporation and by-laws may have the effect of deterring hostile takeovers or delaying changes in our control or in our management. These provisions are intended to enhance the likelihood of continued stability in the composition of our board of directors and in the policies they implement, and to discourage certain types of transactions that may involve an actual or threatened change of our control. These provisions are designed to reduce our vulnerability to an unsolicited acquisition proposal. The provisions also are intended to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and, as a consequence, they also may inhibit fluctuations in the market price of our shares that could result from actual or rumored takeover attempts.

Delaware Business Combination Statute. We are subject to Section 203 of the DGCL, or Section 203, which prohibits a Delaware corporation from engaging in business combinations with an interested stockholder. An interested stockholder is generally defined as an entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation or any entity or person affiliated with or controlling or controlled by such entity or person, or interested stockholder. Section 203 provides that an interested stockholder may not engage in business combinations with the corporation for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- before such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned (i) by persons who are directors and also officers and (ii) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- on or after such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 defines business combinations to include the following:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, lease, transfer, pledge or other disposition of 10% or more of the assets of the corporation to or with the interested stockholder;
- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; or
- the receipt by the interested stockholder of the benefit of any loss, advances, guarantees, pledges or other financial benefits by or through the corporation.

PLAN OF DISTRIBUTION

The selling stockholders, which as used herein includes donees, pledgees, transferees or other successors-in-interest selling shares of common stock or interests in shares of common stock received after the date of this prospectus from a selling stockholder as a gift, pledge, partnership distribution or other transfer, may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of common stock or interests in shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices.

The selling stockholders may use any one or more of the following methods when disposing of shares or interests therein:

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

The selling stockholders may, from time to time, pledge or grant a security interest in some or all of the shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock, from time to time, under this prospectus, or under an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act, amending the list of selling stockholders to include the pledgee, transferee or other successors in interest as selling stockholders under this prospectus. The selling stockholders also may transfer the shares of common stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

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

The aggregate proceeds to the selling stockholders from the sale of the common stock offered by them will be the purchase price of the common stock less discounts or commissions, if any. Each of the selling stockholders reserves the right to accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of common stock to be made directly or through agents. We will not receive any of the proceeds from this offering.

The selling stockholders also may resell all or a portion of the shares in open market transactions in reliance upon Rule 144 under the Securities Act, provided that they meet the criteria and conform to the requirements of that rule.

The selling stockholders and any underwriters, broker-dealers or agents that participate in the sale of the common stock or interests therein may be “underwriters” within the meaning of Section 2(a)(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the shares may be underwriting discounts and commissions under the Securities Act. Selling stockholders who are “underwriters” within the meaning of Section 2(a)(11) of the Securities Act will be subject to the prospectus delivery requirements of the Securities Act.

To the extent required, the shares of our common stock to be sold, the names of the selling stockholders, the respective purchase prices and public offering prices, the names of any agent, dealer or underwriter, and any applicable commissions or discounts with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement that includes this prospectus.

In order to comply with the securities laws of some states, if applicable, the common stock may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the common stock may not be sold unless it has been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

We have advised the selling stockholders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the selling stockholders and their affiliates. In addition, to the extent applicable, we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the selling stockholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling stockholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act.

We have agreed to indemnify the selling stockholders against liabilities, including liabilities under the Securities Act and state securities laws, relating to the registration of the shares offered by this prospectus.

We have agreed with the selling stockholders to use reasonable best efforts to cause the registration statement of which this prospectus constitutes a part to become effective and to maintain such effectiveness continuously for a period up to the earlier of (i) three years from the date of the Registration Rights Agreement and (ii) the date that all Registrable Subscription Securities covered by the registration statement on Form S-3 have been sold or can be sold without restriction pursuant to SEC Rule 144, or another similar exemption under the Securities Act and without the requirement to be in compliance with subsection (c)(1) of SEC Rule 144 (or any successor thereto).

LEGAL MATTERS

The validity of the shares of our common stock offered by this prospectus has been passed upon for us by Wilmer Cutler Pickering Hale and Dorr LLP.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited the consolidated financial statements of Carisma Therapeutics Inc. (formerly Sesen Bio, Inc.) included in our [Annual Report on Form 10-K for the year ended December 31, 2022](#), as set forth in their report, which is incorporated by reference in this prospectus and elsewhere in the registration statement. Such financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

The consolidated financial statements of Carisma Therapeutics Inc. as of December 31, 2022 and 2021, and for the years then ended, have been incorporated by reference herein and in the registration statement in reliance upon the report of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at www.sec.gov. Copies of certain information filed by us with the SEC are also available on our website at www.carismatx.com. Our website is not a part of this prospectus and is not incorporated by reference in this prospectus.

This prospectus is part of a registration statement we filed with the SEC. This prospectus omits some information contained in the registration statement in accordance with SEC rules and regulations. You should review the information and exhibits in the registration statement for further information about us and our consolidated subsidiaries and the securities we are offering. Statements in this prospectus concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to these filings and the exhibits attached thereto. You should review the complete document to evaluate these statements.

INCORPORATION BY REFERENCE

The SEC allows us to incorporate by reference much of the information we file with the SEC, which means that we can disclose important information to you by referring you to those publicly available documents. The information that we incorporate by reference in this prospectus is considered to be part of this prospectus. Because we are incorporating by reference future filings with the SEC, this prospectus is continually updated and those future filings may modify or supersede some of the information included or incorporated in this prospectus. This means that you must look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus or in any document previously incorporated by reference have been modified or superseded. This prospectus incorporates by reference the documents listed below (File No. 001-36296) and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act (in each case, other than those documents or the portions of those documents not deemed to be filed) between the date of the initial registration statement and the effectiveness of the registration statement and following the effectiveness of the registration statement until the offering of the securities under the registration statement is terminated or completed:

- [Annual Report on Form 10-K for the fiscal year ended December 31, 2022](#), as filed with the SEC on February 28, 2023, including the information specifically incorporated by reference into the Annual Report on Form 10-K from our definitive proxy statement for the 2023 Annual Meeting of Stockholders;
- Current Reports on Form 8-K as filed with the SEC on [January 30, 2023](#), [January 31, 2023](#), [February 1, 2023](#), [February 2, 2023](#), [February 7, 2023](#), [February 14, 2023](#), [February 27, 2023](#), [March 2, 2023](#), [March 6, 2023](#), [March 8, 2023](#), and [April 4, 2023](#); and
- The description of our common stock contained in our registration statement on [Form 8-A, as filed with the SEC under the Exchange Act on February 3, 2014](#), as the description therein has been updated and superseded by the description of our capital stock contained on [Exhibit 4.1 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2022](#) and our [Current Report on Form 8-K as filed with the SEC on March 8, 2023](#), including any amendment or report filed for the purpose of updating such description.

You may request a copy of these filings, at no cost, by writing or telephoning us at the following address or telephone number:

Carisma Therapeutics Inc.
3675 Market Street, Suite 200
Philadelphia, PA 19104
Attn: Investor Relations
(267) 491-6422



**3,730,608 SHARES
COMMON STOCK**

PROSPECTUS

, 2023

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The following table sets forth the various expenses to be incurred in connection with the sale and distribution of the securities being registered hereby, all of which will be borne by Carisma Therapeutics Inc. (except any underwriting discounts, commissions, fees of underwriters, selling brokers or dealer managers and expenses incurred by the selling stockholders for brokerage, accounting, tax or legal services or any other expenses incurred by the selling stockholders in disposing of the shares). All amounts shown are estimates except the SEC registration fee.

SEC registration fee	\$ 1,152
Legal fees and expenses	50,000
Accounting fees and expenses	20,000
Printing fees and expenses	7,000
Miscellaneous fees and expenses	—
Total expenses	<u>\$78,152</u>

Item 15. Indemnification of Directors and Officers.

Section 102 of the DGCL permits a corporation to eliminate the personal liability of its directors or its stockholders for monetary damages for a breach of fiduciary duty as a director, except where the director breached his or her duty of loyalty, failed to act in good faith, engaged in intentional misconduct or knowingly violated a law, authorized the payment of a dividend or approved a stock repurchase in violation of Delaware corporate law or obtained an improper personal benefit. The registrant's certificate of incorporation provides that no director shall be personally liable to the registrant or the registrant's stockholders for monetary damages for any breach of fiduciary duty as a director, notwithstanding any provision of law imposing such liability, except to the extent that the DGCL prohibits the elimination or limitation of liability of directors for breaches of fiduciary duty.

Section 145 of the DGCL provides that a corporation has the power to indemnify a director, officer, employee or agent of the corporation and certain other persons serving at the request of the corporation in related capacities against expenses (including attorneys' fees), judgments, fines and amounts paid in settlements actually and reasonably incurred by the person in connection with an action, suit or proceeding to which he or she is or is threatened to be made a party by reason of such position, if such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the corporation, and, in any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful, except that, in the case of actions brought by or in the right of the corporation, no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or other adjudicating court determines that, despite the adjudication of liability but in view of all of the circumstances of the case, such person is fairly and reasonably entitled to indemnification for such expenses which the Court of Chancery or such other court shall deem proper.

The registrant's certificate of incorporation provides that the registrant will indemnify each person who was or is a party or threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the registrant), by reason of the fact that he or she is or was, or has agreed to become, the registrant's director or officer, or is or was serving, or has agreed to serve, at the registrant's request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise (all such persons being referred to as an Indemnitee), or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding and any appeal therefrom if such Indemnitee acted in good faith and in a manner

he or she reasonably believed to be in, or not opposed to, the registrant's best interests, and, with respect to any criminal action or proceeding, he or she had no reasonable cause to believe his or her conduct was unlawful.

The registrant's certificate of incorporation also provides that the registrant will indemnify any Indemnitee who was or is a party to an action or suit by or in the right of the registrant to procure a judgment in the registrant's favor by reason of the fact that the Indemnitee is or was, or has agreed to become, the registrant's director or officer, or is or was serving, or has agreed to serve, at the registrant's request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise, or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees) and, to the extent permitted by law, amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding, and any appeal therefrom, if the Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, the registrant's best interests, except that no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to the registrant, unless a court determines that, despite such adjudication but in view of all of the circumstances, he or she is entitled to indemnification of such expenses. Notwithstanding the foregoing, to the extent that any Indemnitee has been successful, on the merits or otherwise, he or she will be indemnified by the registrant against all expenses (including attorneys' fees) actually and reasonably incurred by him or her or on his or her behalf in connection therewith. If the registrant does not assume the defense, expenses must be advanced to an Indemnitee under certain circumstances.

In addition, the registrant has entered into indemnification agreements with all of the registrant's executive officers and directors. In general, these agreements provide that the registrant will indemnify the executive officer or director to the fullest extent permitted by law for claims arising in his or her capacity as an executive officer or director of the registrant or in connection with his or her service at the registrant's request for another corporation or entity. The indemnification agreements also provide for procedures that will apply in the event that an executive officer or director makes a claim for indemnification and establish certain presumptions that are favorable to the executive officer or director.

The registrant maintains a general liability insurance policy that covers certain liabilities of the registrant's directors and officers arising out of claims based on acts or omissions in their capacities as directors or officers.

Item 16. Exhibits

Exhibit Index

<u>Exhibit No.</u>	<u>Description</u>
2.1	<u>Agreement and Plan of Merger and Reorganization, dated as of September 20, 2022, by and among Sesen Bio, Inc., Seahawk Merger Sub, Inc., and CARISMA Therapeutics Inc. (incorporated by reference to Exhibit 2.1 to the registrant's Current Report on Form 8-K (File No. 001-36296) filed on September 21, 2022)</u>
2.2	<u>First Amendment to Agreement and Plan of Merger and Reorganization, dated as of December 29, 2022, by and among Sesen Bio, Inc., Seahawk Merger Sub, Inc., and CARISMA Therapeutics, Inc. (incorporated by reference to Exhibit 2.1 to the registrant's Current Report on Form 8-K (File No. 001-36296) filed on December 29, 2022)</u>
2.3	<u>Second Amendment to Agreement and Plan of Merger and Reorganization, dated as of February 13, 2023, by and among Sesen Bio, Inc., Seahawk Merger Sub, Inc., and CARISMA Therapeutics, Inc. (incorporated by reference to Exhibit 2.1 to the registrant's Current Report on Form 8-K (File No. 001-36296) filed on February 14, 2023)</u>
4.1	<u>Restated Certificate of Incorporation of Carisma Therapeutics Inc., dated March 7, 2023 (incorporated by reference to Exhibit 3.1 to the registrant's Current Report on Form 8-K (File No. 001-36296) filed on March 8, 2023)</u>

Exhibit No.	Description
4.2	<u>Amended and Restated By-Laws of Carisma Therapeutics Inc., dated March 7, 2023 (incorporated by reference to Exhibit 3.2 to the registrant's Current Report on Form 8-K (File No. 001-36296) filed on March 8, 2023)</u>
4.3	<u>Amended and Restated Subscription Agreement, dated as of December 29, 2022, by and between Carisma and each of the purchasers listed on the signature pages thereto, severally and not jointly (incorporated by reference to Exhibit 10.35 to the registrant's registration statement on Form S-4/A (No. 333-267891) filed on January 10, 2023)</u>
4.4	<u>Registration Rights Agreement, dated March 7, 2023 (incorporated by reference to Exhibit 10.4 to the registrant's Current Report on Form 8-K (File No. 001-36296) filed on September 21, 2022)</u>
5.1*	<u>Opinion of Wilmer Cutler Pickering Hale and Dorr LLP</u>
23.1*	<u>Consent of KPMG LLP, independent registered public accounting firm</u>
23.2*	<u>Consent of Ernst & Young LLP, independent registered public accounting firm</u>
23.3*	<u>Consent of Wilmer Cutler Pickering Hale and Dorr LLP (included in Exhibit 5.1)</u>
24.1*	<u>Powers of Attorney (included in the signature pages to the registration statement)</u>
107*	<u>Filing Fee Table</u>

* Filed herewith

Item 17. Undertakings.

The undersigned registrant hereby undertakes:

- (a)(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
- (i) to include any prospectus required by Section 10(a)(3) of the Securities Act;
 - (ii) to reflect in the prospectus any facts or events arising after the effective date of this registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in this registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and
 - (iii) to include any material information with respect to the plan of distribution not previously disclosed in this registration statement or any material change to such information in this registration statement;

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

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

- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability under the Securities Act to any purchaser:
- (i) each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
 - (ii) each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii) or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof; *provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.
- (b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in this registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.
- (c) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the indemnification provisions described herein, or otherwise, the registrant has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Philadelphia, Commonwealth of Pennsylvania, on April 17, 2023.

CARISMA THERAPEUTICS INC.By: /s/ Steven Kelly

Steven Kelly
President and Chief Executive Officer

SIGNATURES AND POWER OF ATTORNEY

We, the undersigned officers and directors of Carisma Therapeutics Inc. hereby severally constitute and appoint Steven Kelly, Richard Morris and Thomas Wilton, and each of them singly, our true and lawful attorneys-in-fact with full power to any of them, and to each of them singly, to sign for us and in our names in the capacities indicated below the registration statement on Form S-3 filed herewith and any and all amendments (including post-effective amendments) to said registration statement, and to file or cause to be filed the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, and generally to do all such things in our name and on our behalf in our capacities as officers and directors to enable Carisma Therapeutics Inc. to comply with the provisions of the Securities Act of 1933, as amended, and all requirements of the Securities and Exchange Commission, hereby ratifying and confirming all that said attorneys, and each of them, or their substitute or substitutes, shall do or cause to be done by virtue hereof.

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

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Steven Kelly</u> Steven Kelly	President, Chief Executive Officer, Director (Principal Executive Officer)	April 17, 2023
<u>/s/ Richard Morris</u> Richard Morris	Chief Financial Officer (Principal Financial and Accounting Officer)	April 17, 2023
<u>/s/ Sanford Zweifach</u> Sanford Zweifach	Director and Chair of the Board	April 17, 2023
<u>/s/ Regina Hodits, Ph.D.</u> Regina Hodits, Ph.D.	Director	April 17, 2023
<u>/s/ Briggs Morrison, M.D.</u> Briggs Morrison, M.D.	Director	April 17, 2023
<u>/s/ Björn Odlander, M.D.</u> Björn Odlander, M.D.	Director	April 17, 2023
<u>/s/ Michael Torok</u> Michael Torok	Director	April 17, 2023
<u>/s/ Chidozie Ugwumba</u> Chidozie Ugwumba	Director	April 17, 2023

WILMERHALE

+1 617 526 6000 (t)
+1 617 526 5000 (f)
wilmerhale.com

April 17, 2023

Carisma Therapeutics Inc.
3675 Market St., Suite 200
Philadelphia, Pennsylvania 19104

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

This opinion is furnished to you in connection with a Registration Statement on Form S-3 (the "Registration Statement") filed with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), for the registration of an aggregate of 3,730,608 shares of Common Stock, \$0.001 par value per share (the "Shares"), of Carisma Therapeutics Inc. (formerly Sesen Bio, Inc.), a Delaware corporation (the "Company"). All of the Shares are being registered on behalf of certain stockholders of the Company (the "Selling Stockholders").

We are acting as counsel for the Company in connection with the registration for resale of the Shares. We have examined signed copies of the Registration Statement filed with the Commission. We have also examined and relied upon minutes of meetings of the stockholders and the Board of Directors of the Company as provided to us by the Company, stock record books of the Company as provided to us by the Company, the Restated Certificate of Incorporation and Amended and Restated By-Laws of the Company, each as restated and/or amended to date, and such other documents as we have deemed necessary for purposes of rendering the opinions hereinafter set forth.

In our examination of the foregoing documents, we have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as copies, the authenticity of the originals of such latter documents and the legal competence of all signatories to such documents.

Our opinion below, insofar as it relates to the Selling Stockholders' shares being fully paid, is based solely on a certificate of the Chief Financial Officer of the Company confirming the Company's receipt of the consideration called for by the applicable resolutions authorizing the issuance of such shares.

We assume that the appropriate action will be taken, prior to the offer and sale of the Shares, to register and qualify the Shares for sale under all applicable state securities or "blue sky" laws.

We express no opinion herein as to the laws of any state or jurisdiction other than the General Corporation Law of the State of Delaware.

Wilmer Cutler Pickering Hale and Dorr LLP, 7 World Trade Center, 250 Greenwich Street, New York, New York 10007
Beijing Berlin Boston Brussels Denver Frankfurt London Los Angeles New York Palo Alto San Francisco Washington

Based upon and subject to the foregoing, we are of the opinion that the Shares have been duly authorized and are validly issued, fully paid and nonassessable.

It is understood that this opinion is to be used only in connection with the offer and sale of the Shares while the Registration Statement is in effect.

Please note that we are opining only as to the matters expressly set forth herein, and no opinion should be inferred as to any other matters. This opinion is based upon currently existing statutes, rules, regulations and judicial decisions, and we disclaim any obligation to advise you of any change in any of these sources of law or subsequent legal or factual developments which might affect any matters or opinions set forth herein.

We hereby consent to the filing of this opinion with the Commission as an exhibit to the Registration Statement in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act and to the use of our name therein and in the related prospectus under the caption "Legal Matters." In giving such consent, we do not hereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission.

Very truly yours,

/s/ Wilmer Cutler Pickering Hale and Dorr LLP

WILMER CUTLER PICKERING HALE AND DORR LLP

Wilmer Cutler Pickering Hale and Dorr LLP, 7 World Trade Center, 250 Greenwich Street, New York, New York 10007
Beijing Berlin Boston Brussels Denver Frankfurt London Los Angeles New York Palo Alto San Francisco Washington

Consent of Independent Registered Public Accounting Firm

We consent to the use of our report dated April 4, 2023, with respect to the consolidated financial statements of Carisma Therapeutics Inc., incorporated herein by reference and to the reference to our firm under the heading "Experts" in the prospectus.

/s/ KPMG LLP

Philadelphia, Pennsylvania
April 14, 2023

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption “Experts” in the Registration Statement (Form S-3) and related Prospectus of Carisma Therapeutics Inc. (f/k/a Sesen Bio, Inc.) for the registration of 3,730,608 shares of its common stock and to the incorporation by reference therein of our report dated February 28, 2023, with respect to the consolidated financial statements of Sesen Bio, Inc., included in its Annual Report (Form 10-K) for the year ended December 31, 2022, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Boston, Massachusetts
April 17, 2023

Calculation of Filing Fee Tables

Form S-3
(Form Type)

Carisma Therapeutics Inc.

(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered and Carry Forward Securities

	Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee	Carry Forward Form Type	Carry Forward File Number	Carry Forward Initial Effective Date	Filing Fee Previously Paid In Connection with Unsold Securities to be Carried Forward
Newly Registered Securities												
Fees to Be Paid	Equity	Common Stock, \$0.001 par value per share	Other	3,730,608 (1)	\$2.80(2)	\$10,445,703(2)	\$110.20 per \$1,000,000	\$1,151.12				
Fees Previously Paid	—	—	—	—	—	—	—	—				
Carry Forward Securities												
Carry Forward Securities	—	—	—	—	—	—	—	—	—	—	—	—
	Total Offering Amounts					\$10,445,703(2)	—	\$1,151.12				
	Total Fees Previously Paid							—				
	Total Fee Offsets							—				
	Net Fee Due							\$1,151.12				

- (1) The shares of common stock will be offered for resale by the selling stockholders pursuant to the prospectus contained in the registration statement to which this exhibit is attached. The registration statement registers the resale of an aggregate of 3,730,608 shares of the registrant's common stock. Pursuant to Rule 416 under the Securities Act of 1933, as amended, or the Securities Act, the shares of common stock being registered hereunder include such indeterminate number of shares of common stock as may be issuable upon stock splits, stock dividends, or other distribution, recapitalization or similar events.
- (2) This estimate is made pursuant to Rule 457(c) of the Securities Act solely for purposes of calculating the registration fee. The proposed maximum offering price per share and maximum aggregate offering price are based upon the average of the high and low sales prices of the registrant's common stock on April 10, 2023, as reported on The Nasdaq Global Market.