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

**AMENDMENT NO. 1
TO
FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

Vor Biopharma Inc.
(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

81-1591163
(I.R.S. Employer
Identification Number)

**500 Boylston Street, Suite 1350
Boston, Massachusetts 02116
(617) 655-6580**
(Address, including zip code, and telephone number, including area code of registrant's principal executive offices)

**Jean-Paul Kress, M.D.
President and Chief Executive Officer
Vor Biopharma Inc.
500 Boylston Street, Suite 1350
Boston, Massachusetts 02116
(617) 655-6580**
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:
**Divakar Gupta
Katie Kazem
Cooley LLP
55 Hudson Yards
New York, New York 10001-2157
(212) 479-6000**

From time to time after the effective date of this Registration Statement as determined by the selling stockholders
(Approximate date of commencement of proposed sale to the public)

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 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 checked="" 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.

This registration statement shall hereafter become effective in accordance with the provisions of Section 8(a) of the Securities Act of 1933.

EXPLANATORY NOTE

This Amendment No. 1 to the Registration Statement on Form S-3 (Registration No. 333-290490) of Vor Biopharma Inc. is being filed solely for the purpose of including language provided by Rule 473(b) of the Securities Act of 1933, as amended, for the automatic effectiveness of this registration statement 20 days following the filing of this Amendment No. 1.

SUBJECT TO COMPLETION, DATED NOVEMBER 10, 2025

PRELIMINARY PROSPECTUS

50,999,999 Shares



Common Stock

This prospectus relates to the proposed resale from time to time by the selling stockholders named herein, together with any additional selling stockholders listed in a prospectus supplement (together with any of such stockholders' donees, pledgees, transferees or other successors-in-interest), of up to an aggregate of 50,999,999 shares of our common stock, par value \$0.0001 per share, or the Shares, which consists of (i) up to 16,000,000 shares of our common stock issuable upon the exercise of an outstanding warrant, or the RemeGen Warrant, to purchase shares or our common stock held by a subsidiary of RemeGen Co. Ltd., or RemeGen, which was issued as partial consideration for a license agreement with RemeGen, or the License Agreement, granting us exclusive rights to develop and commercialize telitacript outside of the People's Republic of China, Hong Kong, Macau and Taiwan, or Greater China, on June 25, 2025 and (ii) up to 34,999,999 shares of our common stock issuable upon the exercise of outstanding warrants, or the PIPE Warrants, to purchase shares of our common stock held by certain of the selling stockholders, all of which were issued by us at the closing of a private placement on June 27, 2025, or the Private Placement. We refer to the RemeGen Warrant and the PIPE Warrants collectively as the Warrants. All share and per share numbers presented herein give effect to the 1-for-20 reverse stock split of our common stock effected on September 18, 2025.

We are registering the offer and sale of the Shares from time to time by the selling stockholders to satisfy the registration rights they were granted in connection with the License Agreement and the Private Placement. We will not receive any proceeds from the sale of the Shares by the selling stockholders. We will, however, receive the net proceeds of any Warrants exercised for cash. The selling stockholders may offer and sell or otherwise dispose of the Shares described in this prospectus 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. The selling stockholders will bear all underwriting fees, commissions and discounts, if any, attributable to the sales of Shares and any transfer taxes. We will bear all other costs, expenses and fees in connection with the registration of the Shares. SEE THE SECTION TITLED "PLAN OF DISTRIBUTION" ON PAGE 14 FOR MORE INFORMATION ABOUT HOW THE SELLING STOCKHOLDERS MAY SELL OR DISPOSE OF THEIR SHARES.

Our common stock is listed on The Nasdaq Global Select Market under the trading symbol "VOR." On November 7, 2025, the closing price of our common stock was \$18.70 per share.

Investing in shares of our common stock involves a high degree of risk. You should review carefully the risks and uncertainties described in the section titled "[Risk Factors](#)" on page 6 of this prospectus and any similar section contained in the applicable prospectus supplement and in any free writing prospectuses we have authorized for use in connection with a specific offering, and under similar headings in the documents that are incorporated by reference into this prospectus.

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

The date of this prospectus is _____, 2025.

The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities or accept an offer to buy these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting offers to buy these securities in any state where such offer or sale is not permitted.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the SEC, using a “shelf” registration process. Under this shelf process, the selling stockholders may from time to time sell the shares of common stock described in this prospectus in one or more offerings or otherwise as described under “Plan of Distribution.”

This prospectus may be supplemented from time to time by one or more prospectus supplements. Such prospectus supplement may also add, update or change information contained in this prospectus. If there is any inconsistency between the information in this prospectus and the applicable prospectus supplement, you must rely on the information in the prospectus supplement. You should carefully read both this prospectus and any applicable prospectus supplement together with additional information described under the heading “Where You Can Find Additional Information” before deciding to invest in any shares being offered.

Neither we nor the selling stockholders have authorized anyone to provide any information other than that contained or incorporated by reference in this prospectus or in any related prospectus supplement or any free writing prospectus that we have authorized. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. The shares are not being offered in any jurisdiction where the offer is not permitted. You should not assume that the information contained in or incorporated by reference in this prospectus is accurate as of any date other than the respective dates of such document. Our business, financial condition, results of operations and prospects may have changed since those dates.

Unless otherwise stated, all references in this prospectus to “Vor,” “Vor Biopharma,” “Vor Bio,” “we,” “us,” and “our” and similar designations, except where the context requires otherwise, refer collectively to Vor Biopharma Inc. and its consolidated subsidiary.

PROSPECTUS SUMMARY

This summary highlights selected information contained elsewhere in this prospectus and in the documents we incorporate by reference. This summary does not contain all of the information you should consider before investing in our common stock. You should read this entire prospectus carefully, especially the risks of investing in our common stock discussed in the section titled “Risk Factors” and under similar headings in our filings with the SEC which are incorporated by reference in this prospectus, along with our consolidated financial statements and notes to those consolidated financial statements and the other information incorporated by reference in this prospectus, before making an investment decision.

Company Overview

We are a clinical-stage biopharmaceutical company focused on developing a novel therapy for the treatment of autoimmune diseases. In June 2025, we in-licensed telitacicept from RemeGen Co., Ltd., or RemeGen. Telitacicept is approved in China for the treatment of systemic lupus erythematosus, rheumatoid arthritis and generalized myasthenia gravis, or gMG. A global Phase 3 clinical trial in gMG is currently underway across the United States, Europe, South America and Asia, including Japan, to support potential approval in such jurisdictions. Telitacicept is a novel fusion protein for treating autoimmune diseases. It is constructed with the extracellular domain of the human transmembrane activator and calcium modulator and cyclophilin ligand interactor receptor and the fragment crystallizable domain of human immunoglobulin G. Telitacicept targets and acts on two cell signaling molecules critical for B lymphocyte development: B cell lymphocyte stimulator, also known as B cell activating factor, or BAFF, and a proliferation inducing ligand, or APRIL, which allows it to effectively reduce B cell mediated autoimmune responses that are implicated in several autoimmune diseases. Pursuant to our license agreement with RemeGen, we were granted an exclusive license to develop and commercialize telitacicept outside of the Greater China region, which includes mainland China, Hong Kong, Macau and Taiwan. RemeGen retains development and commercialization rights in Greater China. Our broader development plan includes exploring development of telitacicept in additional autoantibody-driven diseases where BAFF / APRIL signaling is a validated target, supported by prior clinical experience and mechanistic rationale.

The License Agreement

On June 25, 2025, we entered into the License Agreement with RemeGen granting us the exclusive rights to develop and commercialize RemeGen’s proprietary fusion protein product, telitacicept, and related products, or the Licensed Products, outside of Greater China. RemeGen retains all rights to the Licensed Products in Greater China. Under the License Agreement, we received an exclusive (even as to RemeGen) license under RemeGen’s patents and know-how to exploit, develop and commercialize the Licensed Products in all territories other than Greater China, with the right to grant sublicenses. We also received a non-exclusive license to manufacture the Licensed Products worldwide solely for use in the licensed territory. In exchange, RemeGen received an exclusive, perpetual and irrevocable license under our intellectual property to exploit and manufacture the Licensed Products in Greater China, as well as a non-exclusive, fully paid-up license to manufacture the Licensed Products worldwide for use in Greater China. We are responsible for all development, regulatory and commercialization activities and costs in the licensed territory, including the conduct of clinical trials and regulatory submissions. The License Agreement established a joint steering committee to oversee collaboration.

As consideration for the rights granted, we paid RemeGen an upfront payment of \$125 million, consisting of a cash payment of \$45 million and the issuance of \$80 million in equity to a subsidiary of RemeGen, Yantai Rongpu Investment Partnership (Limited Partnership), or the RemeGen Warrantholder, in the form of the RemeGen Warrant to purchase 16,000,000 shares of our common stock at an exercise price of \$0.002 per share. The RemeGen Warrant is exercisable immediately, subject to any required filings with or approvals from

regulatory authorities of the People's Republic of China for overseas direct investment, or ODI Approval, and has no expiration date.

The Private Placement

On June 25, 2025, we entered into a securities purchase agreement with accredited investors, or the Investors, pursuant to which we, in a private placement, agreed to issue and sell to the Investors the PIPE Warrants to purchase up to an aggregate of 34,999,999 shares of our common stock at a price per PIPE Warrant of \$5.00, for gross proceeds of \$175 million. The closing of the Private Placement occurred on June 27, 2025.

The PIPE Warrants have an exercise price of \$0.002 per share. The PIPE Warrants are exercisable immediately, subject to ODI Approval to the extent applicable to an Investor, and have no expiration date. A holder (together with its affiliates and other attribution parties) may not exercise any portion of a PIPE Warrant to the extent that immediately prior to or after giving effect to such exercise the holder would own more than 9.99% of our outstanding common stock immediately after exercise, which percentage may be changed at the holder's election to any other percentage no greater than 19.99% upon 61 days' notice to us, subject to the terms of such PIPE Warrant.

The Registration Rights Agreement

In connection with the License Agreement and the Private Placement, we also entered into a registration rights agreement, dated June 25, 2025, or the Registration Rights Agreement, with the RemeGen Warrantheholder and the Investors. Pursuant to the terms of the Registration Rights Agreement, we agreed to file a registration statement to register for resale the Shares within 30 days of the approval by our stockholders of the issuance of the Shares and an amendment to our certificate of incorporation that has the effect of increasing the number of authorized but unissued shares of common stock, or Stockholder Approval, and to use reasonable best efforts to have the registration statement declared effective at the earliest possible date but no later than the earlier of (a) the 75th calendar day following the initial filing date of the registration statement if the SEC notifies us that it will review the registration statement and (b) the fifth business day after the date the SEC notifies us that the registration statement will not be reviewed or be subject to further review. On August 25, 2025, we held a special meeting of our stockholders and received Stockholder Approval. On September 18, 2025, we effected a reverse stock split of our common stock at a ratio of 1-for-20, without any adjustment to the total number of shares of common stock authorized by our certificate of incorporation. The registration statement of which this prospectus forms a part is being filed to satisfy the requirements of the Registration Rights Agreement.

Company Information

We were incorporated under the laws of the State of Delaware in December 2015. Our principal executive offices are located at 500 Boylston Street, Suite 1350, Boston, Massachusetts 02116. Our telephone number is (617) 655-6580. Our internet website address is www.vorbio.com. The information contained on our website is not incorporated by reference into this prospectus, and you should not consider any information contained on, or that can be accessed through, our website as part of this prospectus or in deciding whether to purchase our securities. The inclusion of our website address in this prospectus is only an inactive textual reference.

VOR BIOPHARMA and our Vor Biopharma logo, and our other trademarks or service marks appearing in this prospectus, are our property. This prospectus and the information incorporated herein by reference contains additional trade names, trademarks and service marks of others, which are the property of their respective owners. Solely for convenience, the trademarks and trade names in this prospectus may be referred to without the ® and ™ symbols, but such references should not be construed as any indicator that their respective owners will not assert their rights thereto.

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

We qualify as an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. For so long as we remain an emerging growth company, we may take advantage of relief from certain reporting requirements and other burdens that are otherwise applicable generally to public companies. These provisions include:

- reduced obligations with respect to financial data, including only being required to present two years of audited financial statements, in addition to any required unaudited interim financial statements with correspondingly reduced “Management’s Discussion and Analysis of Financial Condition and Results of Operations” disclosure;
- an exception from compliance with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended;
- reduced disclosure about our executive compensation arrangements in our periodic reports, proxy statements and registration statements;
- exemptions from the requirements of holding non-binding advisory votes on executive compensation or golden parachute arrangements; and
- an exemption from compliance with the requirements of the Public Company Accounting Oversight Board regarding the communication of critical audit matters in the auditor’s report on financial statements.

We may take advantage of these provisions until we no longer qualify as an emerging growth company. We will cease to qualify as an emerging growth company on the date that is the earliest of: (i) December 31, 2026, (ii) the last day of the fiscal year in which we have more than \$1.235 billion in total annual gross revenues, (iii) the date on which we are deemed to be a “large accelerated filer” under the rules of the SEC, which means the market value of our common stock that is held by non-affiliates exceeds \$700 million as of the prior June 30th, or (iv) the date on which we have issued more than \$1.0 billion of non-convertible debt over the prior three-year period. We may choose to take advantage of some but not all of these reduced reporting burdens. We have taken advantage of certain reduced reporting requirements in this prospectus. Accordingly, the information contained herein may be different than you might obtain from other public companies in which you hold equity interests.

In addition, under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have elected to take advantage of the extended transition period to comply with new or revised accounting standards and to adopt certain of the reduced disclosure requirements available to emerging growth companies. As a result of the accounting standards election, we will not be subject to the same implementation timing for new or revised accounting standards as other public companies that are not emerging growth companies, which may make comparison of our financials to those of other public companies more difficult. As a result of these elections, the information that we provide in this prospectus may be different than the information you may receive from other public companies in which you hold equity interests. In addition, it is possible that some investors will find our common stock less attractive as a result of these elections, which may result in a less active trading market for our common stock and higher volatility in our share price.

We are also a “smaller reporting company,” meaning that the market value of our shares held by non-affiliates is less than \$700 million and our annual revenue was less than \$100 million during the most recently completed fiscal year. We may continue to be a smaller reporting company if either (i) the market value of our shares held by non-affiliates is less than \$250 million or (ii) our annual revenue was less than \$100 million during the most recently completed fiscal year and the market value of our shares held by non-affiliates is less than \$700 million. If we are a smaller reporting company at the time we cease to be an emerging growth

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company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. Specifically, as a smaller reporting company, we may choose to present only the two most recent fiscal years of audited financial statements in our Annual Report on Form 10-K and, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

The Offering

Common Stock Offered by the Selling Stockholders 50,999,999 Shares.

Terms of the Offering Each selling stockholder will determine when and how it will sell the common stock offered in this prospectus, as described in “Plan of Distribution.”

Use of Proceeds We will not receive any of the proceeds from the sale of the Shares in this offering. The selling stockholders will receive all of the proceeds from the sale of the Shares hereunder. We will, however, receive the net proceeds of any Warrants exercised for cash.

Risk Factors An investment in our common stock involves a high degree of risk. See the information contained in or incorporated by reference in the section titled “Risk Factors” and under similar headings in the other documents that are incorporated by reference herein, as well as the other information included in or incorporated by reference in this prospectus.

Nasdaq Global Select Market Symbol Our common stock is listed on The Nasdaq Global Select Market under the symbol “VOR.”

RISK FACTORS

An investment in our common stock involves a high degree of risk. Prior to making a decision about investing in our common stock, you should consider carefully the specific risk factors discussed in the sections titled “Risk Factors” contained in our most recent Annual Report on Form 10-K and in our subsequently filed Quarterly Reports on Form 10-Q, as well as any amendments thereto reflected in subsequent filings with the SEC, which are incorporated by reference into this prospectus in their entirety, together with other information in this prospectus, the documents incorporated by reference, any prospectus supplement and any free writing prospectus that we may authorize. These risks and uncertainties are not the only risks and uncertainties we face. Additional risks and uncertainties not presently known to us, or that we currently view as immaterial, may also impair our business. If any of the risks or uncertainties described in our SEC filings or any additional risks and uncertainties actually occur, our business, financial condition, results of operations and cash flow could be materially and adversely affected. In that case, the trading price of our common stock could decline and you might lose all or part of your investment.

Risks Related to the Ownership of Our Common Stock

A substantial number of shares of our common stock may be sold in the market following the effective date of the registration statement of which this prospectus forms a part, which may depress the market price for our common stock.

Sales of a substantial number of shares of our common stock in the public market following the effective date of the registration statement of which this prospectus forms a part could cause the market price of our common stock to decline. A substantial majority of our outstanding common stock is freely tradable without restriction or further registration required under the Securities Act of 1933, as amended, or the Securities Act.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents we have filed with the SEC that are incorporated by reference contain “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933 and the Securities Exchange Act of 1934, as amended, or the Exchange Act. These statements relate to future events or to our future operating or financial performance and 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, performances or achievements expressed or implied by the forward-looking statements. Forward-looking statements may include, but are not limited to, statements about:

- the timing, progress and results of our clinical trials of our product candidate and preclinical and clinical trials for any future products candidates, including statements regarding the timing and pace of initiation, enrollment and completion of studies or trials and related preparatory work, the period during which the results of the trials will become available and plans with respect to our research and development programs;
- the timing of any submission of filings for regulatory approval of, and our ability to obtain and maintain regulatory approvals for, our product candidate and any future product candidates for any indication;
- our ability to identify patients with the diseases treated by our product candidate and any future product candidates, and to enroll patients in clinical trials;
- our expectations regarding the market acceptance and opportunity for and clinical utility of our product candidate and any future product candidates, if approved for commercial use;
- our expectations regarding the scope of any approved indication for any product candidate;
- our ability to successfully commercialize our product candidate or any future product candidates;
- our estimates of our expenses, ongoing losses, future revenue and capital requirements and our need for or ability to obtain additional funding;
- our ability to establish or maintain collaborations or strategic relationships;
- our ability to identify, recruit and retain key personnel, including executive officers and members of management;
- our reliance upon intellectual property licensed from third parties and our ability to obtain such licenses on commercially reasonable terms or at all;
- our ability to protect and enforce our intellectual property position for our product candidate or any future product candidates, and the scope of such protection;
- our financial performance;
- the period over which we estimate our existing cash, cash equivalents and marketable securities will be sufficient to fund our future operating expenses and capital expenditure requirements;
- our competitive position and the development of and projections relating to our competition or our industry;
- the impact of laws and regulations; and
- our expectations regarding the time during which we will be an emerging growth company under the JOBS Act.

We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements

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we make. We have included important factors in the cautionary statements included in this prospectus, particularly in the section titled “Risk Factors,” that we believe could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we may make.

You should read this prospectus, together with the documents we have filed with the SEC that are incorporated by reference, any prospectus supplement and any free writing prospectus that we may authorize completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of the forward-looking statements in the foregoing documents by these cautionary statements.

USE OF PROCEEDS

We will not receive any of the proceeds from the sale of the Shares in this offering. The selling stockholders will receive all of the proceeds from the sale of the Shares hereunder.

We will, however, receive the net proceeds of any Warrants exercised for cash. If exercised for cash, the Warrants would result in gross proceeds to us of approximately \$102,000 if the Warrants are exercised in full, and we will use any net proceeds received from the exercise of the Warrants for general corporate purposes. The Warrants may be exercised on a cashless basis, in which case we would not receive any cash payment upon any such exercise.

We will bear the out-of-pocket costs, expenses and fees, including a specified amount of outside counsel fees of the RemeGen Warrantholder and the Investors, incurred in connection with the registration of the Shares to be sold by the selling stockholders pursuant to this prospectus. Other than registration expenses, the selling stockholders will bear their own broker or similar commissions payable with respect to sales of the Shares.

SELLING STOCKHOLDERS

The shares of common stock being offered by the selling stockholders consist of (i) the Shares issuable upon exercise of the RemeGen Warrant issued to a subsidiary of RemeGen as partial consideration for the License Agreement and (ii) the Shares issuable upon exercise of the PIPE Warrants issued to the Investors in the Private Placement. For additional information regarding the License Agreement and the issuance of the RemeGen Warrant, see the section “Prospectus Summary—The License Agreement” above. For additional information regarding the issuance of the PIPE Warrants, see the section “Prospectus Summary—The Private Placement” above. We are registering the resale of the Shares issuable upon exercise of the Warrants in order to satisfy certain registration obligations that we granted the RemeGen Warrantholder and the Investors in connection with the License Agreement and the purchase of the PIPE Warrants.

Beneficial ownership is determined in accordance with the rules of the SEC and includes voting or investment power with respect to our common stock. Generally, a person “beneficially owns” shares of our common stock if the person has or shares with others the right to vote those shares or to dispose of them, or if the person has the right to acquire voting or disposition rights within 60 days.

The table below lists the selling stockholders and other information regarding the beneficial ownership of the shares of common stock by each of the selling stockholders. This information has been obtained from the selling stockholders or in Schedules 13G or 13D and other public documents filed with the SEC and gives effect to the 1-for-20 reverse stock split of our common stock effected on September 18, 2025. The second column lists the number of shares of common stock beneficially owned by each selling stockholder as of September 18, 2025, without giving effect to any limitations on exercise of the Warrants. The actual number of shares of common stock beneficially owned by each selling stockholder, if determined in accordance with the rules of the SEC, may be lower than the amounts reflected in the second column. The third, fourth and fifth columns assume the sale of all of the shares offered by the selling stockholders pursuant to this prospectus. The percentage of shares beneficially owned after the offering in the fifth column is based on 6,853,907 shares of common stock outstanding as of September 18, 2025.

In accordance with the terms of the Registration Rights Agreement, this prospectus covers the resale of the maximum number of Shares issuable upon exercise of the Warrants. This maximum amount is determined as if the outstanding Warrants were exercised in full as of September 18, 2025, subject to adjustment as provided in the Registration Rights Agreement and without regard to any limitations on the exercise of the warrants. Under the terms of the Warrants, a selling stockholder may not exercise the Warrants to the extent such exercise would cause such selling stockholder, together with its affiliates and attribution parties, to beneficially own a number of shares of common stock which would exceed 9.99% of the number of shares of our common stock outstanding following such exercise (for purposes of the denominator, immediately after giving effect to the issuance of shares of common stock to be issued upon the applicable exercise of such Warrant), which percentage may be changed at the selling stockholder’s election to any other percentage no greater than 19.99% upon 61 days’ notice to us, subject to the terms of the Warrants. The number of shares in the third column does not reflect this limitation. The selling stockholders may sell all, some or none of their shares in this offering. See the section “Plan of Distribution.”

Pursuant to a securities purchase agreement we entered into with certain qualified institutional buyers on December 26, 2024, including RA Capital Healthcare Fund, L.P., or RACHF, we agreed to appoint one individual designated by RACHF, the RA Capital Appointed Director, to our board of directors, or the Board, as a Class II director, subject to approval by the Board upon the recommendation of the nominating & corporate governance committee of the Board, or the Nominating Committee, and to invite one individual designated by RACHF, and reasonably acceptable to us, to attend and participate, subject to certain conditions, in all meetings of the Board, in a nonvoting observer capacity, for so long as RACHF, together with its Affiliates (as such term is defined in Rule 13d-3 of the Exchange Act) continues to beneficially own at least 4.99% or more of our then issued and outstanding common stock. Joshua Resnick, M.D., a member of the Board from February 2019 to

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August 2025, is a managing director at RA Capital Management, L.P., an affiliate of RACHF, and served as the initial RA Capital Appointed Director. Dr. Resnick resigned as a director on August 25, 2025, and on August 27, 2025, the Board appointed Sarah Reed to the Board as the RA Capital Appointed Director. Ms. Reed is the general counsel of RA Capital Management, L.P.

Except as otherwise disclosed herein, the selling stockholders do not have, and within the past three years have not had, any position, office or other material relationship with us.

Name of Selling Stockholder	Shares of Common Stock Beneficially Owned Prior to This Offering ⁽¹⁾	Number of Shares Being Offered in This Offering ⁽²⁾	Beneficial Ownership After This Offering	
			Number of Shares	Percent of Shares
RemeGen Co., Ltd. ⁽³⁾	16,000,000	16,000,000	—	—
RA Capital Healthcare Fund, L.P. ⁽⁴⁾	11,988,657	10,000,000	1,988,657	29.0%
ForGrowth III PA B.V. ⁽⁵⁾	7,000,000	7,000,000	—	—
Entities affiliated with Venrock Healthcare Capital Partners ⁽⁶⁾	5,000,000	5,000,000	—	—
Verve Capital Limited ⁽⁷⁾	5,000,000	5,000,000	—	—
Qiming Venture Partners ⁽⁸⁾	2,000,000	2,000,000	—	—
Mingxin Growth Ventures LS1 Limited ⁽⁹⁾	1,700,000	1,700,000	—	—
Regal Gardens Fort Limited ⁽¹⁰⁾	1,100,000	1,100,000	—	—
NEXTBio Capital LLC ⁽¹¹⁾	1,000,000	1,000,000	—	—
CMC 2022 Opportunities Fund, LLC ⁽¹²⁾	600,000	600,000	—	—
Sinobase International Trading Limited ⁽¹³⁾	600,000	600,000	—	—
Caligan Partners LP ⁽¹⁴⁾	999,999	999,999	—	—

- (1) For the purpose of the calculations of the number of shares beneficially owned prior to this offering pursuant to this prospectus, we have not given effect to the beneficial ownership limitations on exercise as described above and as set forth in the Warrants. The actual number of shares beneficially owned by a selling stockholder prior to this offering, if determined in accordance with the rules of the SEC, may be lower than the amounts reflected in this column.
- (2) For the purpose of the calculations of the number of shares being offered in this offering pursuant to this prospectus, we are assuming, in accordance with the Registration Rights Agreement, the exercise in full of all of the Warrants without regard to any beneficial ownership limitations on exercise as described above and as set forth in the Warrants.
- (3) Consists of 16,000,000 Shares underlying the RemeGen Warrant issued to Yantai Rongpu Investment Partnership (Limited Partnership) in connection with the License Agreement. Yantai Rongpu Investment Partnership (Limited Partnership) is a wholly owned subsidiary of RemeGen Co., Ltd. The business address for Yantai Rongpu Investment Partnership (Limited Partnership) is 58 Middle Beijing Road, Room 211, Yantai, Shandong, China.
- (4) Consists of (i) 1,891,035 shares of common stock held by RA Capital Healthcare Fund L.P. (“RACHF”), (ii) 91,266 shares of common stock held by RA Capital Nexus Fund, L.P. (“RACNF”), (iii) 10,000,000 Shares underlying PIPE Warrants held by RACHF, (iv) 6,190 shares of common stock issuable upon exercise of stock options vested within 60 days of September 18, 2025 held by Josh Resnick, a former member of our board of directors, for the benefit of RA Capital Management, L.P. (“RA Capital”), and (v) 166 shares of common stock issuable upon exercise of stock options vested within 60 days of September 18, 2025 held by Sarah Reed, a member of our board of directors, for the benefit of RA Capital. RA Capital Healthcare Fund GP, LLC is the general partner of RACHF, and RA Capital Nexus Fund GP, LLC is the general partner of RACNF. The general partner of RA Capital is RA Capital Management GP, LLC, of which Dr. Peter

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Kolchinsky and Mr. Rajeev Shah are the controlling persons. RA Capital serves as investment adviser for RACHF and RACNF and may be deemed a beneficial owner, for purposes of Section 13(d) of the Exchange Act, of any of our securities held by RACHF and RACNF. RACHF and RACNF have delegated to RA Capital the sole power to vote and the sole power to dispose of all securities held in RACHF's and RACNF's portfolio, including the shares of common stock offered hereby. Because RACHF and RACNF have divested themselves of voting and investment power over the reported securities they hold and may not revoke that delegation on less than 61 days' notice, RACHF and RACNF disclaim beneficial ownership of the securities they hold for purposes of Section 13(d) of the Exchange Act and therefore disclaim any obligation to report ownership of such securities under Section 13(d) of the Exchange Act. As managers of RA Capital, Dr. Kolchinsky and Mr. Shah may be deemed beneficial owners, for purposes of Section 13(d) of the Exchange Act, of any of our securities beneficially owned by RA Capital. RA Capital, Dr. Kolchinsky and Mr. Shah disclaim beneficial ownership of any of our securities beneficially owned by RA Capital other than for the purpose of determining their obligations under Section 13(d) of the Exchange Act. The principal business address of the persons and entities listed above is 200 Berkeley Street, 18th Floor, Boston, MA 02116.

- (5) Consists of 7,000,000 Shares underlying PIPE Warrants held by ForGrowth III PA B.V. ("ForGrowth III"). Forbion Growth Opportunities Fund III Cooperatief U.A. ("Forbion Growth III COOP"), the sole shareholder of ForGrowth III, and Forbion Growth III Management B.V. ("Forbion Growth III"), as director of each of ForGrowth III and Forbion Growth III COOP, may be deemed to have voting and investment power over the securities held directly by ForGrowth III. The address of the principal business and principal office of each of the entities referenced in this footnote is c/o Forbion Capital Partners, Gooimeer 2-35, 1411 DC Naarden, The Netherlands.
- (6) Consists of (i) 1,165,500 Shares underlying PIPE Warrants held by Venrock Healthcare Capital Partners III, L.P. ("VHCP III"), (ii) 116,500 Shares underlying PIPE Warrants held by VHCP Co-Investment Holdings III, LLC ("VHCP Co-Investment III"), and (iii) 3,718,000 Shares underlying PIPE Warrants held by Venrock Healthcare Capital Partners EG, L.P. ("VHCP EG"). VHCP Management III, LLC is the general partner of VHCP III and the manager of VHCP Co-Investment III. VHCP Management EG, LLC is the general partner of VHCP EG. Nimish Shah and Bong Y. Koh are the voting members of VHCP Management III, LLC and VHCP Management EG, LLC and may be deemed to share voting and investment power over the securities held directly by VHCP III, VHCP Co-Investment III and VHCP EG. The principal business address of the entities and individuals referenced in this footnote is 7 Bryant Park, 23rd Floor, New York, NY 10018.
- (7) Consists of 5,000,000 Shares underlying PIPE Warrants held by Verve Capital Limited. HongTu Zhu has voting and investment power over the securities held directly by Verve Capital Limited. The principal business address of the entity and individual referenced in this footnote is Flat B, 23/F, Panorama Gardens, 103 Robinson Road, Hong Kong.
- (8) Consists of (i) 910,200 Shares underlying PIPE Warrants held by Qiming Venture Partners VIII Investments, LLC ("Qiming VIII") and (ii) 1,089,800 Shares underlying PIPE Warrants held by Qiming Venture Partners VIII-HC, L.P. ("Qiming VIII-HC"). Duane Ziping Kuang, Gary Edward Rieschel, Suk Han Grace Lee and Ho Man Lam share voting and investment power over the securities held directly by Qiming VIII and Qiming VIII-HC. The principal business address of the entities and individuals referenced in this footnote is Unit 4205-6, 42/F, Gloucester Tower, The Landmark, Central, Hong Kong.
- (9) Consists of 1,700,000 Shares underlying PIPE Warrants held by Mingxin Growth Ventures LS1 Limited ("Mingxin"). Mark Louie has voting and investment power over the securities held by Mingxin. The principal business address of the entity and individual referenced in this footnote is 525 University Avenue, Suite A-20, Palo Alto, California 94301.
- (10) Consists of 1,100,000 Shares underlying PIPE Warrants held by Regal Gardens Fort Limited ("Regal Gardens"). Baoma Wen has voting and investment power over the securities held by Regal Gardens. The principal business address of the entity and individual referenced in this footnote is 9/F, Tung Ning Building, 249-253 Des Voeux Road Central, Hong Kong.
- (11) Consists of (i) 600,000 Shares underlying PIPE Warrants held by NEXTBio Evergreen LLC and (ii) 400,000 Shares underlying PIPE Warrants held by NEXTBio Master Fund LP (together, the "NEXTBio Funds"). NEXTBio Capital Management LP ("NEXTBio") is the management company and investment

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advisor to the NEXTBio Funds and has sole voting and investment power with respect to these securities. NEXTBio Capital Management (GP) LLC (“NEXTBio GP”) is the sole general partner of NEXTBio. Hongbo Lu and Richard Klemm are managing members of NEXTBio GP, which may be deemed to be beneficial owners of the securities directly held by the NEXTBio Funds. The address of the individuals and entities referenced in this footnote is 3000 Sand Hill Road, Suite 3-210, Menlo Park, California 94025.

- (12) Consists of 600,000 Shares underlying PIPE Warrants held by CMC 2022 Opportunities Fund, LLC. The principal business address of the entity referenced in this footnote is 525 University Avenue, Suite 200, Palo Alto, California 94301.
- (13) Consists of 600,000 Shares underlying PIPE Warrants held by Sinobase International Trading Limited. Jinhua Ren has voting and investment power over the securities held by Sinobase International Trading Limited. The principal business address of the entity referenced in this footnote is Unit A1, 6/F., One Capital Place, 18 Luard Rd, Wan Chai, Hong Kong.
- (14) Consists of (i) 666,666 Shares underlying PIPE Warrants held by Caligan Partners Master Fund LP (“Caligan Fund”), (ii) 233,333 Shares underlying PIPE Warrants held by Caligan Partners LP (“Caligan”) as the investment manager to a managed account and (iii) 100,000 Shares underlying PIPE Warrants held by Caligan as the investment manager to a separate managed account. Caligan serves indirectly as the investment manager to Caligan Fund. David Johnson is the Managing Partner of Caligan and Managing Member of Caligan Partners GP LLC, the general partner of Caligan, and may be deemed to have voting and investment power over the securities held by Caligan Fund. The principal business address for each of the entities and the individual referenced in this footnote is c/o Caligan Partners LP, 780 Third Avenue, 30th Floor, New York, New York 10017.

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:

- distributions to members, partners, stockholders or other equityholders of the selling stockholders;
- 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 and settlement of short sales entered into after the effective date of the registration statement of which this prospectus is a part;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- through broker-dealers that agree with the selling stockholders 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 pursuant to 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 pledgees, transferees 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 donees, transferees, pledgees or other successors-in-interest will be the selling stockholders 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 create 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).

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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. Upon any exercise of the Warrants by payment of cash, however, we will receive the exercise price of the Warrants.

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, or another available exemption from the registration requirements under the Securities Act.

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 (it being understood that the selling stockholders shall not be deemed to be underwriters solely as a result of their participation in this offering). 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 remain continuously effective until the earlier of: (i) the date on which the selling stockholders shall have resold or otherwise disposed of all the shares covered by this prospectus and (ii) the date on which the shares covered by this prospectus may be resold by the selling stockholders without registration and without regard to any volume or manner-of-sale limitations and without current public information pursuant to Rule 144 under the Securities Act or any other rule of similar effect.

LEGAL MATTERS

Cooley LLP, New York, New York, will pass upon the validity of the shares of common stock offered hereby. As of the date of this prospectus, GC&H Investments, LLC and GC&H Investments, a California partnership, which are entities beneficially owned by current and former partners and associates of Cooley LLP, beneficially hold an aggregate of 1,767 shares of our common stock.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2024, as set forth in their report (which contains an explanatory paragraph describing conditions that raise substantial doubt about the Company's ability to continue as a going concern as described in Note 1 to the consolidated financial statements), which is incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

This prospectus is part of a registration statement we filed with the SEC. This prospectus does not contain all of the information set forth in the registration statement and the exhibits to the registration statement. For further information with respect to us and the securities we are offering under this prospectus, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. You should rely only on the information contained in this prospectus or incorporated by reference in this prospectus. We have not authorized anyone else to provide you with different information. We are not making an offer of these securities in any state where the offer is not permitted. You should not assume that the information in this prospectus is accurate as of any date other than the date on the front page of this prospectus, regardless of the time of delivery of this prospectus or any sale of the securities offered by this prospectus.

We file annual, quarterly and current reports, proxy statements and other information with the SEC. The SEC maintains a website that contains reports, proxy statements and other information regarding issuers that file electronically with the SEC, including Vor. The address of the SEC website is www.sec.gov.

We maintain a website at www.vorbio.com. Information contained in or accessible through our website does not constitute a part of this prospectus and is not incorporated by reference in this prospectus. We have included our website address as an inactive textual reference only.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to “incorporate by reference” information from other documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus, while information that we file later with the SEC will automatically update and supersede the information in this prospectus. We incorporate by reference into this prospectus and the registration statement of which this prospectus is a part the information or documents listed below that we have filed with the SEC (Commission File No. 001-39979):

- our Annual Report on [Form 10-K](#) for the year ended December 31, 2024, filed with the SEC on March 20, 2025;
- our Quarterly Reports on Form 10-Q for the quarters ended [March 31, 2025](#) and [June 30, 2025](#), filed with the SEC on May 14, 2025 and August 12, 2025, respectively;
- our Current Reports on Form 8-K filed with the SEC on [January 8, 2025](#); [February 6, 2025](#); [April 3, 2025](#); [April 25, 2025](#); [May 8, 2025](#); [May 20, 2025](#); [May 23, 2025](#); [June 26, 2025](#); [July 10, 2025](#); [July 22, 2025](#); [August 27, 2025](#); [August 27, 2025](#); [September 17, 2025](#); and [November 3, 2025](#) (to the extent the information in such reports is filed and not furnished);
- the information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2024 from our Revised Definitive Proxy Statement on [Schedule 14A](#) filed with the SEC on April 30, 2025; and
- the description of our common stock as described in [Exhibit 4.3](#) to our Annual Report on Form 10-K filed with the SEC on March 20, 2025, including any amendments or reports filed for the purposes of updating this description.

We also incorporate by reference any future filings (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items unless such Form 8-K expressly provides to the contrary) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made after the date of the initial filing of the registration statement of which this prospectus is a part and prior to effectiveness of such registration statement, until we file a post-effective amendment that indicates the termination of the offering of the shares of our common stock made by this prospectus and will become a part of this prospectus from the date that such documents are filed with the SEC. Information in such future filings updates and supplements the information provided in this prospectus. Any statements in any such future filings will automatically be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that statements in the later filed document modify or replace such earlier statements.

We will provide to each person, including any beneficial owner, to whom a prospectus is delivered, without charge upon written or oral request, a copy of any or all of the documents that are incorporated by reference into this prospectus but not delivered with the prospectus, including exhibits that are specifically incorporated by reference into such documents. You should direct any requests for documents to:

Vor Biopharma Inc.
Attn: Investor Relations
500 Boylston Street, Suite 1350
Boston, Massachusetts 02116
(617) 655-6580

50,999,999 Shares



Common Stock

PRELIMINARY PROSPECTUS

PART II
INFORMATION NOT REQUIRED IN THE PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution

The following table sets forth an estimate of the fees and expenses payable by us in connection with the sale of the securities being registered. All of the amounts shown are estimates except for the SEC registration fee.

	<u>Amount</u>
SEC registration fee	\$ 216,596.69
Accounting fees and expenses	10,000.00
Legal fees and expenses	55,000.00
Miscellaneous fees and expenses	8,403.31
Total	<u>\$ 290,000.00</u>

Item 15. Indemnification of Directors and Officers

We are incorporated under the laws of the State of Delaware. Section 102 of the DGCL permits a corporation to eliminate the personal liability of directors of a corporation to the corporation 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.

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 indemnity for such expenses which the Court of Chancery or such other court shall deem proper.

As permitted by the DGCL, our Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws provide that: (i) we are required to indemnify our directors to the fullest extent permitted by the DGCL; (ii) we may, in our discretion, indemnify our officers and employees when determined appropriate by our board of directors; (iii) we are required, upon satisfaction of certain conditions, to advance expenses incurred by our directors in advance of the final disposition of any action or proceeding; (iv) we are permitted to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in that capacity regardless of whether we would otherwise be permitted to indemnify him or her under the provisions of Delaware law; and (v) we are authorized to enter into indemnification agreements with our directors, officers, employees and agents.

We have entered into agreements with our directors and executive officers that require us to indemnify them against expenses including, among other things, attorneys' fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or proceeding, whether actual or threatened, to which such person may be made a party by reason of the fact that such person is or was a director or officer of us or any of our affiliates, provided such person acted in good faith and in a manner such person reasonably believed to be in,

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or not opposed to, our best interests. The indemnification agreements also set forth certain procedures that will apply in the event of a claim for indemnification thereunder. At present, no litigation or proceeding is pending that involves any of our directors or officers regarding which indemnification is sought, nor are we aware of any threatened litigation that may result in claims for indemnification.

We maintain a directors' and officers' liability insurance policy. The policy insures directors and officers against unindemnified losses arising from certain wrongful acts in their capacities as directors and officers and reimburses us for those losses for which we have lawfully indemnified the directors and officers. The policy contains various exclusions.

Item 16. Exhibits

Exhibit Number	Description	Incorporated by Reference			
		Form	File Number	Exhibit	Filing Date
4.1	Amended and Restated Certificate of Incorporation of the Registrant.	8-K	001-39979	3.1	February 9, 2021
4.2	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Registrant.	8-K	001-39979	3.1	May 23, 2025
4.3	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Registrant.	8-K	001-39979	3.1	September 17, 2025
4.4	Amended and Restated Bylaws of the Registrant.	8-K	001-39979	3.2	February 9, 2021
4.5	Form of Common Stock Certificate of the Registrant	S-3	333-290490	4.5	September 24, 2025
4.6	Form of Pre-Funded Warrant to Purchase Common Stock.	8-K	001-39979	10.1	June 26, 2025
4.7 ^{^†}	Form of Securities Purchase Agreement, dated June 25, 2025, by and between the Registrant and Yantai Rongpu Investment (Limited Partnership).	8-K	001-39979	10.2	June 26, 2025
4.8 [†]	Form of Securities Purchase Agreement, dated June 25, 2025, by and between the Registrant and the investors named therein.	8-K	001-39979	10.3	June 26, 2025
4.9 [†]	Form of Registration Rights Agreement, dated June 25, 2025, by and between the Registrant and the investors named therein.	8-K	001-39979	10.4	June 26, 2025
5.1	Opinion of Cooley LLP.	S-3	333-290490	5.1	September 24, 2025
23.1	Consent of Cooley LLP (included in Exhibit 5.1).	S-3	333-290490	23.1	September 24, 2025
23.2*	Consent of Ernst & Young LLP, independent registered public accounting firm.	—	—	—	—
24.1	Power of Attorney.	S-3	333-290490	24.1	September 24, 2025
107	Filing Fee Table.	S-3	333-290490	107	September 24, 2025

[^] Portions of the exhibit have been omitted as the Registrant has determined that: (i) the omitted information is not material; and (ii) the omitted information is the type that the Registrant treats as private or confidential.

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- † Certain schedules and exhibits have been omitted pursuant to Item 601(a)(5) of Regulation S-K. We will supplementally furnish copies of omitted schedules and exhibits to the SEC or its staff upon its request.
- * Filed herewith.

Item 17. Undertakings

(a) The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) to include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) to reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Securities and Exchange Commission, or the Commission, pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(iii) to include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement.

Provided, however, that paragraphs (1)(i), (1)(ii) and (1)(iii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

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

(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 of 1933 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 of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that

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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 undertakes that, for the purpose of determining any liability of the registrant under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the 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 of 1933 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 Boston, Commonwealth of Massachusetts, on November 10, 2025.

VOR BIOPHARMA INC.

By: /s/ Jean-Paul Kress
Jean-Paul Kress, M.D.
President and Chief Executive Officer

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

Signature	Title	Date
<u>/s/ Jean-Paul Kress</u> Jean-Paul Kress, M.D.	President, Chief Executive Officer and Chairman of the Board <i>(Principal Executive Officer)</i>	November 10, 2025
* <u>Sandesh Mahatme</u>	Chief Financial Officer <i>(Principal Financial Officer and Principal Accounting Officer)</i>	November 10, 2025
* <u>Daniella Beckman</u>	Director	November 10, 2025
* <u>Alexander Cumbo</u>	Director	November 10, 2025
* <u>Michel Detheux</u>	Director	November 10, 2025
* <u>Erez Kalir</u>	Director	November 10, 2025
* <u>Fouad Namouni, M.D.</u>	Director	November 10, 2025
* <u>Sarah Reed</u>	Director	November 10, 2025

*By: /s/ Jean-Paul Kress
Jean-Paul Kress, M.D.
Attorney-in-Fact

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption “Experts” and to the use of our report dated March 20, 2025, in Amendment No. 1 to the Registration Statement (Form S-3 No. 333-290490) and related Prospectus of Vor Biopharma Inc. for the registration of 50,999,999 shares of its common stock.

/s/ Ernst & Young LLP

November 10, 2025
Boston, Massachusetts