

PROSPECTUS



Up to 42,633,337 shares of Class A Common Stock

Up to 125,000,004 Shares of Class A Common Stock Issuable Upon Exercise of Common Stock Warrants

Up to 82,366,667 Shares of Class A Common Stock Issuable Upon Exercise of Pre-Funded Warrants

This prospectus relates to the proposed resale from time to time by the selling stockholders of:

- up to 42,633,337 shares of our Class A common stock;
- up to 125,000,004 shares of our Class A common stock issuable upon the exercise of outstanding common stock warrants; and
- up to 82,366,667 shares of our Class A common stock issuable upon the exercise of outstanding pre-funded warrants.

The selling stockholders purchased the shares of Class A common stock, common stock warrants and pre-funded warrants from us pursuant to a securities purchase agreement, dated October 16, 2025.

We are not selling any shares of Class A common stock pursuant to this prospectus, and we will not receive any proceeds from the sale of shares of Class A common stock offered by this prospectus by the selling stockholders, except with respect to amounts received by us upon exercise of the common stock warrants and pre-funded warrants.

The selling stockholders may offer and sell or otherwise dispose of the shares of our Class A common stock 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 "Plan of Distribution" for more information about how the selling stockholders may sell or dispose of its shares of our Class A common stock.

Our Class A common stock is listed on The Nasdaq Global Market under the trading symbol "RANI." On November 6, 2025, the last reported sale price of the Class A common stock was \$2.27 per share.

Investing in our Class A common stock involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading "[Risk Factors](#)" on page 4 of this prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus.

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

The date of this prospectus is December 3, 2025.

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ABOUT THIS PROSPECTUS

Neither we nor the selling stockholders have authorized anyone to provide you with any information other than that contained in, or incorporated by reference into, this prospectus. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This prospectus is an offer to sell only the shares of our Class A common stock offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. You should not assume that the information contained in or incorporated by reference in this prospectus is accurate as of any date other than their respective dates. Our business, financial condition, results of operations and prospects may have changed since those dates.

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

Unless the context indicates otherwise, as used in this prospectus, the terms “Rani,” “Company,” “we,” “us” and “our” refer to Rani Therapeutics Holdings, Inc., or Rani Holdings, together with its subsidiaries, Rani Therapeutics, LLC, or Rani LLC.

PROSPECTUS SUMMARY

This summary highlights selected information contained elsewhere in this prospectus or incorporated by reference in this prospectus, and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus, including the risks of investing in our securities discussed under the heading “Risk Factors” contained in this prospectus and under similar headings in the other documents that are incorporated by reference into this prospectus. You should also carefully read the information incorporated by reference into this prospectus, including our financial statements, and the exhibits to the registration statement of which this prospectus is a part.

Overview

We are a clinical stage biotherapeutics company focusing on advancing technologies to enable the administration of biologics and drugs orally, to provide patients, physicians, and healthcare systems with a convenient alternative to painful injections. We are advancing a portfolio of oral therapeutics using our proprietary delivery technology and we are actively pursuing partnering the technology with third party biopharmaceutical companies for the oral delivery of their biologics and drugs.

Our technology comprises a drug-agnostic oral delivery platform, the RaniPill capsule, which is designed to deliver a wide variety of drug substances, including antibodies, proteins, peptides, and oligonucleotides. We have two configurations of the platform – the RaniPill GO and the RaniPill HC. The RaniPill GO is designed to deliver up to a 3 mg dose of drug in microtablet form with high bioavailability. We have completed three Phase 1 clinical trials using the RaniPill GO. We are also developing a high-capacity version of the RaniPill capsule known as the RaniPill HC, which is intended to enable delivery of drug payloads up to 200µL in liquid form with high bioavailability. We have tested preclinically the RaniPill HC with multiple therapeutics, including antibodies and a peptide. We intend to initiate clinical testing of the RaniPill HC by the end of 2025.

We do not have any products approved for sale, and we have not yet generated any revenue from sales of a commercial product. Our ability to generate product revenue sufficient to achieve profitability, if ever, will depend on the successful development of the RaniPill capsule, which we expect will take a number of years. Given our stage of development, we have not yet established a commercial organization or distribution capabilities, and we have no experience as a company in marketing drugs or a drug-delivery platform. When, and if, any of our product candidates are approved for commercialization, we plan to develop a commercialization infrastructure or engage commercial sales organizations or distributors for those products in the United States, Europe, Asia, and potentially in certain other key markets. We may also rely on partnerships to provide commercialization infrastructure, including sales, marketing, and commercial distribution.

Private Placement

On October 16, 2025, we entered into a securities purchase agreement, or the Purchase Agreement, with (i) certain institutional and accredited investors, and (ii) Mir Imran, the Executive Chairman of our board of directors, or collectively, the Purchasers, pursuant to which we agreed to issue and sell in a private placement:

- 42,633,337 shares Class A common stock;
- common stock warrants to purchase up to 125,000,004 shares of Class A common stock (or pre-funded warrants); and
- pre-funded warrants to purchase up to 82,366,667 shares of Class A common stock.

Pursuant to the Purchase Agreement, the purchase price per share of Class A common stock to the Institutional Investors was \$0.48 per share; and the purchase price per share of Class A common stock to Mir

Imran was \$0.605 per share, which reflects the consolidated closing bid price of our Class A common stock on October 16, 2025, as reported on the Nasdaq Stock Market, plus \$0.125 per Common Warrant. The purchase price of the pre-funded warrants to the Purchasers was \$0.4799 per pre-funded warrant, which equals the purchase price per share of Class A common stock minus the \$0.0001 exercise price per pre-funded warrant. We received gross proceeds of approximately \$60.3 million from the Private Placement (including conversion of the outstanding debt of \$6.0 million), before deducting fees to the placement agents and offering expenses payable by us. The closing of the Private Placement occurred on October 23, 2025, or the Closing Date.

The common stock warrants have an exercise price of \$0.48 per share and will become exercisable following the effective date of stockholder approval and have a term of five years following the initial exercise date. The pre-funded warrants are exercisable immediately following the Closing Date, have an unlimited term and an exercise price of \$0.0001 per share. Pursuant to the Purchase Agreement, we also agreed to seek approval from our stockholders for the issuance of the shares issuable upon exercise of the common stock warrants within 75 days following the Closing Date.

On October 16, 2025, we also entered into a registration rights agreement with the Purchasers, or the Registration Rights Agreement, pursuant to which we have agreed to file registration statements under the Securities Act of 1933, as amended, or the Securities Act, with the U.S. Securities and Exchange Commission, or the SEC, covering the resale of (i) the shares of Class A common stock and (ii) the shares of Class A common stock issuable upon exercise of the common stock warrants and pre-funded warrants purchased in connection with the Purchase Agreement no later than 15 days following the Closing Date, or the Filing Deadline, and to use reasonable best efforts to have the registration statement declared effective 45 days after the Closing Date, and in any event no later than 90 days following the Closing Date in the event of a “full review” by the SEC, or the Effectiveness Deadline.

We are only registering pursuant to the registration statement of which this prospectus forms a part (i) the shares of Class A common stock and (ii) the shares of Class A common stock issuable upon exercise of the common stock warrants and pre-funded warrants, that were issued and sold in the Private Placement.

Samsara BioCapital Nomination Right

Pursuant to the Purchase Agreement, for so long as Samsara BioCapital and its affiliates, or collectively, Samsara, beneficially own securities representing at least 25% of the securities issued to it on the Closing Date (including upon exercise of the common stock warrants and pre-funded warrants), Samsara shall have the right, subject to compliance with the applicable rules and regulations of The Nasdaq Stock Market, to designate one member of our board of directors, or the Samsara Board Representative. In connection with this nomination right, we appointed Abraham Bassan as the Samsara Board Representative to our board of directors until the earlier of our next annual meeting of stockholders, the appointment and qualification of his successor, or his death, resignation, or removal and until his successor has been duly elected and qualified, or until his earlier death, resignation or removal. In addition, Mr. Bassan was appointed as chair of the Nominating and Corporate Governance Committee.

Anomaly Ventures Nomination Right

Pursuant to the Purchase Agreement, for so long as Anomaly Ventures, LLC and its affiliates, or collectively, Anomaly, beneficially own securities representing at least 25% of the securities issued to it on the Closing Date (including upon exercise of the common stock warrants and pre-funded warrants), Anomaly shall have the right, subject to compliance with the applicable rules and regulations of The Nasdaq Stock Market, to designate one member of our board of directors, or the Anomaly Board Representative. In connection with this nomination right, we appointed Vasudev Bailey, Ph.D. as the Anomaly Board Representative to our board of

directors until the earlier of our next annual meeting of stockholders, the appointment and qualification of his successor, or his death, resignation, or removal and until his successor has been duly elected and qualified, or until his earlier death, resignation or removal. In addition, Dr. Bailey was appointed as chair of the Compensation Committee.

Use of Proceeds

We will not receive any of the proceeds from the sale of shares of our Class A common stock by the selling stockholders in this offering, except with respect to amounts received by us upon exercise of the common stock warrants and pre-funded warrants, to the extent the warrants are exercised for cash. The selling stockholders will receive all of the proceeds from the sale of shares of our Class A common stock hereunder.

The Nasdaq Global Market Listing

Our Class A common stock is listed on The Nasdaq Global Market under the symbol “RANI”. We do not intend to list the common stock warrants or pre-funded warrants on any national securities exchange.

Company Information

Rani Holdings was formed as a Delaware corporation in April 2021 for the purpose of facilitating an initial public offering, or the IPO, of its Class A common stock, to facilitate certain organizational transactions, and to operate the business of Rani Therapeutics, LLC, or Rani LLC. In connection with the IPO, we established a holding company structure with Rani Holdings as a holding company and its principal asset is the LLC Interests that it owns. As the sole managing member of Rani LLC, Rani Holdings operates and controls all of Rani LLC’s operations, and through Rani LLC and its subsidiary, conducts all of Rani LLC’s business. Our principal offices are located at 2051 Ringwood Ave., San Jose, California 95131 and our telephone number is (408) 457-3700. Our corporate website address is www.ranitherapeutics.com. The contents of our website are not incorporated by reference herein, and any references to our website is intended to be inactive textual references only.

RISK FACTORS

Investing in our Class A common stock involves a high degree of risk. Before deciding whether to invest in our Class A common stock, you should consider carefully the risks and uncertainties described under the heading “Risk Factors” contained in our most recent annual report on Form 10-K, as updated by our subsequent quarterly reports on Form 10-Q and other filings we make with the SEC, which are incorporated by reference into this prospectus in their entirety, together with other information in this prospectus and the documents incorporated by reference. The risks described in these documents are not the only ones we face, but those that we consider to be material. There may be other unknown or unpredictable economic, business, competitive, regulatory or other factors that could have material adverse effects on our future results. Past financial performance may not be a reliable indicator of future performance, and historical trends should not be used to anticipate results or trends in future periods. If any of these risks actually occur, our business, financial condition, results of operations or cash flow could be harmed. This could cause the trading price of our Class A common stock to decline, resulting in a loss of all or part of your investment. Please also read carefully the section below titled “Special Note Regarding Forward-Looking Statements.”

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, as amended, or the Securities Act, and Section 21E of 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 that may cause our actual results, performance or achievements to be materially different from any future results, performances or achievements expressed or implied by the forward-looking statements. Forward-looking statements may include, but are not limited to, statements about:

- the progress, timing, and focus of our current and future clinical trials in the United States and abroad, and the reporting of data from those trials;
- our ability to advance product candidates into and successfully complete clinical trials;
- the beneficial characteristics, safety, efficacy, and therapeutic effects of our product candidates;
- our potential and ability to successfully manufacture and supply our product candidates for clinical trials and for commercial use, if approved;
- our ability to complete development of the RaniPill HC or any redesign and conduct additional preclinical and clinical studies of the RaniPill HC or any future design of the RaniPill capsule to accommodate target payloads that are larger than the payload capacity of the RaniPill GO capsule used to date for clinical studies of our product candidates;
- our ability to further develop and expand our platform technology;
- our ability to utilize our technology platform to generate and advance additional product candidates;
- the accuracy of our estimates regarding expenses, future revenue, capital requirements, and needs for additional financing;
- our financial performance;
- our plans relating to commercializing our product candidates, if approved;
- our ability to selectively enter into strategic partnership and the expected potential benefits thereof, including our collaboration with Chugai Pharmaceuticals Co. Ltd.;
- the implementation of our strategic plans for our business and product candidates;
- our ability to continue to scale and optimize our manufacturing processes, including by expanding our use of automation;
- our estimates of the number of patients in the United States who suffer from the indications we target and the number of patients that will enroll in our clinical trials;
- the size of the market opportunity for our product candidates in each of the indications we target;
- our ability to continue to innovate and expand our intellectual property by developing new applications of the RaniPill capsule;
- our plans and ability to obtain or protect intellectual property rights, including extensions of existing patent terms where available;
- the scope of protection we are able to establish and maintain for intellectual property rights, including our technology platform and product candidates;
- the sufficiency of our existing cash and cash equivalents to fund our future operating expenses and capital expenditure requirements;

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- our ability to maintain the listing of our Class A common stock on the Nasdaq Global Market;
- our ability to realize savings from any restructuring plans or cost-containment measures;
- developments relating to our competitors and our industry, including competing product candidates and therapies;
- proceeds received from the exercise of the common stock warrants or pre-funded warrants, if any; and
- our expectations regarding the period during which we will qualify as an emerging growth company under the Jumpstart Our Business Startups Act of 2012.

In some cases, you can identify forward-looking statements by terms such as “may,” “will,” “should,” “could,” “would,” “expects,” “plans,” “anticipates,” “believes,” “estimates,” “projects,” “predicts,” “potential” and similar expressions intended to identify forward-looking statements. These statements reflect our current views with respect to future events, are based on assumptions and are subject to risks and uncertainties. Given these uncertainties, you should not place undue reliance on these forward-looking statements. We discuss in greater detail, and incorporate by reference into this prospectus in their entirety, many of these risks under the section titled “Risk Factors” in our most recent annual report on Form 10-K, and in our subsequent quarterly reports on Form 10-Q, as updated by our subsequent filings under the Exchange Act, which are incorporated herein by reference, as may be updated or superseded by the risks and uncertainties described under similar headings in the other documents that are filed after the date hereof and incorporated by reference into this prospectus. Also, these forward-looking statements represent our estimates and assumptions only as of the date of the document containing the applicable statement.

These risks are not exhaustive. Other sections of this prospectus may include additional factors that could harm our business and financial performance. Moreover, we operate in a very competitive and rapidly changing environment. New risk factors emerge from time to time, and it is not possible for our management to predict all risk factors nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ from those contained in, or implied by, any forward-looking statements.

You should not rely upon forward-looking statements as predictions of future events. We cannot assure you that the events and circumstances reflected in the forward-looking statements will be achieved or occur.

Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance or achievements. Except as required by law, we undertake no obligation to update publicly any forward-looking statements for any reason after the date of this prospectus or to conform these statements to actual results or to changes in our expectations.

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

You should read this prospectus and the documents that we reference in this prospectus and have filed as exhibits to the registration statement of which this prospectus is a part with the understanding that our actual future results, levels of activity, performance and achievements may be different from what we expect. We qualify all of our forward-looking statements by these cautionary statements.

USE OF PROCEEDS

All the shares of our Class A common stock to be sold pursuant to this prospectus will be sold by the selling stockholders. We will not receive any of the proceeds from such sales.

The common stock warrants and pre-funded warrants may be exercised for cash or in certain limited circumstances on a net exercise or “cashless” basis. If the common stock warrants and pre-funded warrants are exercised for cash, we will receive approximately \$60 million in connection with such exercise. There can be no assurances that any of the common stock warrants and pre-funded warrants will be exercised for cash.

We intend to use the net proceeds from the private placement to purchase LLC interests from Rani LLC. We intend to cause Rani LLC to use the net proceeds from such purchase for working capital and other general corporate purposes.

Our expected use of proceeds described above represents our current intentions based on our present plans and business condition. We cannot predict with certainty all of the particular uses for such proceeds or the actual amounts that we will spend on the uses set forth above. The amounts and timing of our actual expenditures will depend on numerous factors, including the time and cost necessary to conduct our planned clinical trials, the results of our planned clinical trials and other factors described in “Risk Factors” in this prospectus, as well as the amount of cash used in our operations and any unforeseen cash needs.

We will have broad discretion over how to use the net proceeds and we intend to invest the net proceeds that are not used as described above in short-term, investment-grade, interest-bearing instruments.

DESCRIPTION OF CAPITAL STOCK

Summary

Our authorized capital stock consists of

- 800,000,000 shares of Class A common stock, par value \$0.0001 per share;
- 40,000,000 shares of Class B common stock, par value \$0.0001 per share;
- 20,000,000 shares of Class C common stock, par value \$0.0001 per share; and
- 20,000,000 shares of preferred stock, par value \$0.0001 per share.

A description of the material terms and provisions of our amended and restated certificate of incorporation and amended and restated bylaws affecting the rights of holders of our capital stock is set forth below. The description is intended as a summary, and is qualified in its entirety by reference to our amended and restated certificate of incorporation and our amended and restated bylaws which are incorporated by reference into the registration statement of which this prospectus is a part.

Class A Common Stock

Voting Rights

Holders of our Class A common stock are entitled to cast one vote per share. Holders of our Class A common stock will not be entitled to cumulate their votes in the election of directors. Generally, all matters to be voted on by stockholders must be approved by a majority (or, in the case of election of directors, by a plurality) of the votes entitled to be cast by all holders of Class A common stock and Class B common stock present in person or represented by proxy, voting together as a single class. Except as otherwise provided by law, amendments to the amended and restated certificate of incorporation must be approved by a majority or, in some cases, a super-majority of the combined voting power of all shares of Class A common stock and Class B common stock, voting together as a single class. Pursuant to the Purchase Agreement, we have agreed to amend our amended and restated certificate of incorporation so that a super-majority of the combined voting power of all shares of Class A common stock and Class B common stock, voting together as a single class would be required for certain future amendments to the amended and restated certificate of incorporation and bylaws.

Dividends and Other Distributions

Subject to preferences that may be applicable to any then outstanding preferred stock, any dividend or distribution paid or payable to the holders of shares of Class A common stock shall be paid pro rata, on an equal priority, pari passu basis; provided, however, that if a dividend or distribution is paid in the form of Class A common stock (or rights to acquire shares of Class A common stock), then the holders of the Class A common stock shall receive Class A common stock (or rights to acquire shares of Class A common stock).

Distribution on Dissolution

In the event of our liquidation, dissolution or winding up, upon the completion of the distributions required with respect to any series of redeemable convertible preferred stock that may then be outstanding, our remaining assets legally available for distribution to stockholders shall be distributed on an equal priority, pro rata basis to the holders of Class A common stock and Class C common stock, unless different treatment is approved by the majority of the voting power of the outstanding shares of Class A common stock and Class B common stock.

Rights and Preferences

No shares of Class A common stock are subject to redemption or have preemptive rights to purchase additional shares of Class A common stock. Holders of shares of our Class A common stock do not have

subscription, redemption or conversion rights. There are no redemption or sinking fund provisions applicable to the Class A common stock. The rights, preferences and privileges of the holders of our Class A common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of our preferred stock that we may designate and issue in the future.

Class B Common Stock

Shares of Class B common stock will only be issued in the future to the extent necessary to maintain a one-to-one ratio between the number of membership interests of Rani LLC, or the LLC Interests, held by our Class B common stockholders who are members of Rani LLC, or the Continuing LLC Owners, and the number of shares of Class B common stock issued to the Continuing LLC Owners. Shares of Class B common stock are transferable only together with LLC Interests. Shares of Class B common stock will be cancelled on a one-for-one basis if we, at the election of the Continuing LLC Owners, redeem or exchange their LLC Interests pursuant to the terms of the amended and restated limited liability company agreement of Rani LLC, as currently in effect, or the Rani LLC Agreement, a copy of which has previously been filed as an exhibit with the SEC.

Voting Rights

Holders of Class B common stock are entitled to cast 10 votes per share until the date on which the holders of at least two-thirds (2/3) of the voting power of the Class B common stock, voting as a single class, affirmatively vote to retire all outstanding shares of Class B common stock, or the Final Conversion Date, and thereafter, one vote per share, with the number of shares of Class B common stock held by each Continuing LLC Owner being equivalent to the number of LLC Interests held by such Continuing LLC Owner. Holders of our Class B common stock are not entitled to cumulate their votes in the election of directors. The voting power afforded to Continuing LLC Owners by their shares of Class B common stock will be automatically and correspondingly reduced as they redeem their LLC Interests because an equal number of their shares of Class B common stock will be cancelled.

Generally, all matters to be voted on by stockholders must be approved by a majority (or, in the case of election of directors, by a plurality) of the votes entitled to be cast by all Class A and Class B stockholders present in person or represented by proxy, voting together as a single class. Except as otherwise provided by law, amendments to the amended and restated certificate of incorporation must be approved by a majority or, in some cases, a super-majority of the combined voting power of all shares of Class A common stock and Class B common stock, voting together as a single class. There will be a separate vote of the Class B common stock in the following circumstances:

- (a) If we amend, alter or repeal any provision of the amended and restated certificate of incorporation or the amended and restated bylaws in a manner that modifies the voting, conversion or other powers, preferences, or other special rights or privileges, or restrictions of the Class B common stock;
- (b) If we reclassify any of outstanding shares of Class A common stock or Class C common stock into shares having rights as to dividends or liquidation that are senior to the Class B common stock or, in the case of Class A common stock, the right to more than one vote for each share thereof and, in the case of Class C common stock, the right to have any vote for any share thereof, except as required by law; or
- (c) If we authorize any shares of preferred stock with rights as to dividends or liquidation that are senior to the Class B common stock or the right to more than one vote for each share thereof.

Pursuant to the Purchase Agreement, we have agreed to amend our amended and restated certificate of incorporation so that holders of Class B common stock would be entitled to cast one vote per share, we have also agreed to eliminate a separate Class B common stock vote in the circumstances described in subsection (b) and (c) above.

Dividend Rights and Other Distributions

Pursuant to our amended and restated certificate of incorporation, each share of Class B common stock will be retired, and all rights with respect to such shares shall cease and terminate, automatically upon the earlier to occur of (a) the occurrence of a Transfer (as defined therein), other than a Permitted Transfer (as defined therein) of such share of Class B common stock and (b) on the Final Conversion Date.

Distribution on Dissolution

On our liquidation, dissolution or winding up, holders of Class B common stock will not be entitled to receive any distribution of our assets.

Transfers

Pursuant to the Rani LLC Agreement, each holder of Class B common stock agrees that: (i) the holder will not transfer any shares of Class B common stock to any person unless the holder transfers an equal number of LLC Interests to the same person; and (ii) in the event the holder transfers any LLC Interests to any person, the holder will transfer an equal number of shares of Class B common stock to the same person.

Rights and Preferences

No shares of Class B common stock have preemptive rights to purchase additional shares of Class B common stock. Holders of shares of our Class B common stock do not have subscription, redemption or conversion rights. There will be no redemption or sinking fund provisions applicable to the Class B common stock.

Class C Common Stock

Voting Rights

Holders of our Class C common stock are not entitled to vote on any matter that is submitted to a vote of the stockholders, except as otherwise required by law.

Dividend Rights and Other Distributions

Any dividend or distribution paid or payable to the holders of shares of Class C common stock shall be paid pro rata, on an equal priority, pari passu basis; provided, however, that if a dividend or distribution is paid in the form of Class C common stock (or rights to acquire shares of Class C common stock), then the holders of the Class C common stock shall receive Class C common stock (or rights to acquire shares of Class C common stock).

Distribution on Dissolution

In the event of our liquidation, dissolution or winding-up, upon the completion of the distributions required with respect to any series of redeemable convertible preferred stock that may then be outstanding, our remaining assets legally available for distribution to stockholders shall be distributed on an equal priority, pro rata basis to the holders of Class A common stock and Class C common stock, unless different treatment is approved by the majority of the voting power of the outstanding shares of Class A common stock and Class B common stock.

Preferred Stock

Our amended and restated certificate of incorporation provides that our board of directors has the authority, without action by the stockholders other than as described under the heading “Description of Capital Stock—Class B Common Stock” above, to designate and issue up to 20,000,000 shares of preferred stock in one or more classes or series and to fix the powers, rights, preferences, privileges and restrictions of each class or series of preferred stock, including dividend rights, conversion rights, voting rights, redemption privileges,

liquidation preferences and the number of shares constituting any class or series, which may be greater than the rights of the holders of the common stock.

The issuance of preferred stock could have the effect of making it more difficult for a third-party to acquire, or could discourage a third-party from seeking to acquire, a majority of our outstanding voting stock. Additionally, the issuance of preferred stock may adversely affect the holders of our Class A common stock by restricting dividends on the Class A common stock, diluting the voting power of the Class A common stock or subordinating the liquidation rights of the Class A common stock. As a result of these or other factors, the issuance of preferred stock could have an adverse impact on the market price of our Class A common stock.

Anti-Takeover Provisions of Delaware Law and Our Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws

Certain provisions of Delaware law and certain provisions that are included in our amended and restated certificate of incorporation and amended and restated bylaws summarized below may be deemed to have an anti-takeover effect and may delay, deter, or prevent a tender offer or takeover attempt that a stockholder might consider to be in its best interests, including attempts that might result in a premium being paid over the market price for the shares held by stockholders.

Preferred Stock

Our amended and restated certificate of incorporation contains provisions that permit our board of directors to issue, without any further vote or action by the stockholders other than as described under the header “Description of Capital Stock—Class B Common Stock” above, shares of preferred stock in one or more series and, with respect to each such series, to fix the number of shares constituting the series and the designation of the series, the voting rights (if any) of the shares of the series and the powers, preferences, or relative, participation, optional, and other special rights, if any, and any qualifications, limitations, or restrictions, of the shares of such series.

Classified Board

Our amended and restated certificate of incorporation provides that from and after the Final Conversion Date, our board of directors be divided into three classes, designated Class I, Class II and Class III. Each class is an equal number of directors, as nearly as possible, consisting of one-third of the total number of directors constituting the entire board of directors. The term of initial Class I directors shall terminate on the first annual meeting of the stockholders after the Final Conversion Date, the term of the initial Class II directors shall terminate on the second annual meeting of the stockholders after the Final Conversion Date, and the term of the initial Class III directors shall terminate on the third annual meeting of the stockholders after the Final Conversion Date. At each annual meeting of stockholders beginning after the Final Conversion Date, successors to the class of directors whose term expires at that annual meeting will be elected for a three-year term. Pursuant to the Purchase Agreement, we have agreed to amend our amended and restated certificate of incorporation to eliminate the option providing for a classified board of directors.

Removal of Directors

Our amended and restated certificate of incorporation provides that stockholders may only remove a director for cause by a vote of no less than a majority of the total voting power of the shares present in person or by proxy at the meeting and entitled to vote.

Director Vacancies

Our amended and restated certificate of incorporation authorizes only our board of directors to fill vacant directorships.

No Cumulative Voting

Our amended and restated certificate of incorporation provides that stockholders do not have the right to cumulate votes in the election of directors.

Special Meetings of Stockholders

Our amended and restated certificate of incorporation and amended and restated bylaws provide that, except as otherwise required by law, special meetings of the stockholders may be called only (i) prior to the Final Conversion Date, by the holders of at least 25% of the voting power of our Class A common stock and Class B common stock, voting together as a single class; (ii) by a resolution adopted by a majority of our board of directors; (iii) by the chairperson of our board of directors; or (iv) by our Chief Executive Officer. Pursuant to the Purchase Agreement, we have agreed to amend our amended and restated certificate of incorporation to eliminate the ability of the holders of at least 25% of the voting power of our Class A common stock and Class B common stock, voting together as a single class, to call a special meeting.

Advance Notice Procedures for Director Nominations

Our amended and restated bylaws provides that stockholders seeking to nominate candidates for election as directors at an annual or special meeting of stockholders must provide timely notice thereof in writing. To be timely, a stockholder's notice generally will have to be delivered to and received at our principal executive offices before notice of the meeting is issued by the secretary of the Company, with such notice being served not later than the close of business on the ninetieth (90th) day nor earlier than the close of business on the one hundred twentieth (120th) day prior to the first anniversary of the preceding year's annual meeting. Although the amended and restated bylaws does not give the board of directors the power to approve or disapprove stockholder nominations of candidates to be elected at an annual meeting, the amended and restated bylaws may have the effect of precluding the conduct of certain business at a meeting if the proper procedures are not followed or may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect its own slate of directors or otherwise attempting to obtain control of the Company.

Action by Written Consent

Our amended and restated certificate of incorporation and amended and restated bylaws provide that, after the Final Conversion Date, any action to be taken by the stockholders must be affected at a duly called annual or special meeting of stockholders and may not be affected by written consent. Pursuant to the Purchase Agreement, we have agreed to amend our amended and restated certificate of incorporation to eliminate ability of stockholders to act by written consent.

Authorized but Unissued Shares

Our authorized but unissued shares of Class A common stock and preferred stock will be available for future issuances without stockholder approval, except as required by the listing standards of the Nasdaq Stock Market, and could be utilized for a variety of corporate purposes, including future offerings to raise additional capital, acquisitions and employee benefit plans. The existence of authorized but unissued and unreserved Class A common stock and preferred stock could render more difficult or discourage an attempt to obtain control of the Company by means of a proxy contest, tender offer, merger, or otherwise.

Choice of Forum

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law:

- any derivative action or proceeding brought on our behalf;

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- any action or proceeding asserting a claim of breach of a fiduciary duty owed by any of our current or former directors, officers, or other employees to us or our stockholders;
- any action or proceeding asserting a claim against us or any of our current or former directors, officers, or other employees, arising out of or pursuant to any provision of the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws;
- any action or proceeding to interpret, apply, enforce, or determine the validity of our amended and restated certificate of incorporation or our amended and restated bylaws;
- any action or proceeding as to which the Delaware General Corporation Law confers jurisdiction to the Court of Chancery of the State of Delaware; and
- any action asserting a claim against us or any of our directors, officers, or other employees governed by the internal affairs doctrine.

In all the above cases to the fullest extent permitted by law and subject to the court's having personal jurisdiction over the indispensable parties named as defendants. These provisions would not apply to suits brought to enforce a duty or liability created by the Exchange Act. Furthermore, Section 22 of the Securities Act of 1933, as amended, or the Securities Act, creates concurrent jurisdiction for federal and state courts over all such Securities Act actions. Accordingly, both state and federal courts have jurisdiction to entertain such claims. To prevent having to litigate claims in multiple jurisdictions and the threat of inconsistent or contrary rulings by different courts, among other considerations, our amended and restated certificate of incorporation further provides that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause or causes of action arising under the Securities Act, including all causes of action asserted against any defendant to such complaint.

These exclusive forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, or other employees and may discourage these types of lawsuits. Furthermore, the enforceability of similar choice of forum provisions in other companies' certificates of incorporation or bylaws has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be inapplicable or unenforceable. If a court were to find the exclusive forum provision contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur further significant additional costs associated with resolving such action in other jurisdictions, all of which could seriously harm our business.

Business Combinations with Interested Stockholders

We have elected not to be subject to or governed by Section 203 of the Delaware General Corporation Law. Pursuant to the Purchase Agreement, we have agreed to amend our amended and restated certificate of incorporation to be subject to Section 203 of the Delaware General Corporation Law.

Subject to certain exceptions, Section 203 of the Delaware General Corporation Law prohibits a public Delaware corporation from engaging in a business combination (as defined in such section) with an "interested stockholder" (defined generally as any person who beneficially owns 15% or more of the outstanding voting stock of such corporation or any person affiliated with such person) for a period of three years following the time that such stockholder became an interested stockholder, unless:

- prior to such time the board of directors of such corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon the closing of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of such corporation at the time the transaction commenced (excluding for purposes of determining the voting stock of such corporation outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned (A) by persons who are directors and also officers of such corporation and (B) by employee

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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

- at or subsequent to such time the business combination is approved by the board of directors of such corporation and authorized at a meeting of stockholders (and not by written consent) by the affirmative vote of at least 66 2/3% of the outstanding voting stock of such corporation not owned by the interested stockholder.

Listing

Our Class A common stock is listed on the Nasdaq Global Market under the trading symbol “RANI.” We do not intend to list the common stock warrants or pre-funded warrants on any national securities exchange.

Transfer Agent and Registrar

The transfer agent and registrar for our Class A common stock is Equiniti Trust Company, LLC.

SELLING STOCKHOLDER

The selling stockholders may offer and sell, from time to time, any or all of the shares of Class A common stock being offered for resale by this prospectus, which consists of up to:

- 42,633,337 shares of Class A common stock issued to the selling stockholders;
- 125,000,004 shares of Class A common stock issuable to the selling stockholders upon the exercise of the common stock warrants; and
- 82,366,667 shares of Class A common stock issuable to certain of the selling stockholders upon the exercise of the pre-funded warrants.

For additional information regarding the issuance of these securities, see the section titled “Prospectus Summary—Private Placement.”

In addition to the transaction described in this prospectus, the selling stockholders have not had any material relationship with us within the past three years, except for:

- the ownership of our securities;
- Mir Imran’s, the Executive Chairman of our board of directors, participation in the Private Placement;
- Samsara BioCapital’s Nomination Right (see the section titled “Description of Capital Stock – Samsara BioCapital Board Nomination Right”); and
- Anomaly Ventures’ Nomination Right (see the section titled “Description of Capital Stock – Anomaly Ventures Board Nomination Right”).

As used in this prospectus, the term “selling stockholder” includes the selling stockholder listed in the table below, together with any additional selling stockholders listed in a subsequent amendment to this prospectus, and their donees, pledgees, assignees, transferees, distributees and successors-in-interest that receive shares in any non-sale transfer after the date of this prospectus.

In accordance with the terms of the Registration Rights Agreement, this prospectus covers the resale of the maximum number of shares of Class A common stock issuable upon exercise of the common stock warrants and pre-funded warrants without regard to any limitations on the exercise of such warrant. Under the terms of the common stock warrants and pre-funded warrants held by the selling stockholders, the selling stockholders may not exercise any such warrant 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 Class A common stock which would exceed 4.99% or 9.99%, as applicable, of our then outstanding shares of Class A common stock following such exercise, excluding for purposes of such determination shares of Class A common stock issuable upon exercise of such warrant which have not been exercised. The shares reported under “Beneficial Ownership Prior to This Offering” and “Number of Shares Being Offered” in the table below do not give effect to any such beneficial ownership limitation.

The table below lists the selling stockholders and other information regarding the beneficial ownership of the shares of Class A common stock by the selling stockholders as of October 31, 2025, assuming the full exercise of the warrants held by the selling stockholder on that date, without regard to any limitations on exercises. As of October 31, 2025, we had 121,511,580 shares of capital stock issued and outstanding. The following table also provides the number of shares of Class A common stock that may be sold by the selling stockholder under this prospectus and that the selling stockholder will beneficially own assuming all the shares of Class A common stock that may be offered pursuant to this prospectus are sold. Because the selling stockholder may dispose of all, none or some portion of its shares of Class A common stock, no estimate can be given as to the number of shares of Class A common stock that will be beneficially owned by the selling stockholder upon

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termination of this offering. For purposes of the table below, however, we have assumed that after termination of this offering none of the shares of Class A common stock covered by this prospectus will be beneficially owned by the selling stockholder and further assumed that the selling stockholder will not acquire beneficial ownership of any additional securities during the offering. In addition, the selling stockholder may have sold, transferred or otherwise disposed of, or may sell, transfer or otherwise dispose of, at any time and from time to time, our securities in transactions exempt from the registration requirements of the Securities Act after the date on which the information in the table is presented. See the section titled “Plan of Distribution.”

Name of Selling Stockholder	Beneficial Ownership Prior to This Offering	Number of Shares Being Offered ⁽²⁾	Beneficial Ownership After This Offering ⁽¹⁾	
	Shares		Shares	%
Entities affiliated with Avenue Venture ⁽³⁾	25,076,335	25,000,000	76,335	*
GRATIA HOLDING LTD ⁽⁴⁾	3,020,796	2,847,224	173,572	*
Ilya Kravets ⁽⁵⁾	1,041,668	1,041,668	—	—
Entities affiliated with Invus ⁽⁶⁾	20,833,334	20,833,334	—	—
Mir Imran ⁽⁷⁾	27,093,552	4,166,668	22,926,884	18.24%
RA Capital Healthcare Fund, L.P. ⁽⁸⁾	50,000,000	50,000,000	—	—
Entities affiliated with Samsara BioCapital ⁽⁹⁾	50,000,000	50,000,000	—	—
Entities affiliated with Special Situations ⁽¹⁰⁾	37,500,000	37,500,000	—	—
Stalex Cayman Limited ⁽¹¹⁾	50,000,000	50,000,000	—	—
Stuywater Capital LLC ⁽¹²⁾	4,166,668	4,166,668	—	—
UOITO FO AG ⁽¹³⁾	2,175,119	2,013,890	161,229	*
VEGA IV LIMITED ⁽¹⁴⁾	2,591,785	2,430,556	161,229	*
Total Shares Being Offered		250,000,008		

* Represents beneficial ownership of less than 1%

- (1) Assumes each selling stockholder sells the maximum number of shares of our Class A common stock possible in this offering.
- (2) Represents all of the shares of our Class A common stock that the selling stockholders may offer and sell from time to time under this prospectus without giving effect to the beneficial ownership limitation in the common stock warrants and pre-funded warrants.
- (3) Consists of (i) 1,466,667 shares of Class A common stock issued in the Private Placement to Avenue Global Dislocation Opportunities Fund, L.P., or Avenue Global; (ii) 1,173,333 shares of Class A common stock issued in the Private Placement to Avenue Venture Opportunities Fund, L.P., or Avenue Venture Opportunities; (iii) 1,760,000 shares of Class A common stock issued in the Private Placement to Avenue Venture Opportunities Fund II, L.P., or Avenue Venture Opportunities II; (iv) 4,166,667 shares of Class A common stock issuable upon exercise of common stock warrants to Avenue Global; (v) 3,333,333 shares of Class A common stock issuable upon exercise of common stock warrants to Avenue Venture Opportunities; (vi) 5,000,000 shares of Class A common stock issuable upon exercise of common stock warrants to Avenue Venture Opportunities II; (vii) 2,700,000 shares of Class A common stock issuable upon exercise of pre-funded warrants to Avenue Global; (viii) 2,160,000 shares of Class A common stock issuable upon exercise of pre-funded warrants to Avenue Venture Opportunities; and (ix) 3,240,000 shares of Class A common stock issuable upon exercise of pre-funded warrants to Avenue Venture Opportunities II. Avenue Capital Management II, L.P., in its capacity as investment manager, trading advisor, and/or general partner, may be deemed the beneficial owner of the shares held by Avenue Global, Avenue Venture Opportunities and Avenue Venture Opportunities II, or collectively, the Avenue Funds. Avenue Capital Management II GenPar, LLC is the general partner of Avenue Capital Management II, L.P. Marc Lasry is the managing member of Avenue Capital Management II GenPar, LLC. Mr. Lasry may be deemed to be the indirect

beneficial owner of the securities reported by the Avenue Funds by reason of his ability to direct the vote and/or disposition of such securities, and his pecuniary interest in such shares (within the meaning of Rule 16a-1(a)(2) under the Exchange Act) is a fractional interest in such amount. The address of each of the foregoing entities is c/o Avenue Capital Management II, L.P., 11 West 42nd Street, 9th Floor, New York, NY 10036.

- (4) Consists of (i) 1,423,612 shares of Class A common stock issued in the Private Placement to GRATIA HOLDING LTD, or GRATIA; (ii) 1,423,612 shares of Class A common stock issuable upon exercise of the common stock warrants to GRATIA; (iii) 161,229 shares of Class A common stock held by Bossa Ventures Group Corp, or BV Group; and (iv) 12,343 shares of Class A common stock held by VH Molll Fund I, LP, or VH Molll Fund. BV Group is equally owned by GRATIA, UOITO FO AG, or UOITO, and VEGA IV LIMITED, or VEGA. GRATIA has the majority ownership of VH Molll Fund. Jorge Moll is the sole owner of GRATIA and holds the voting control and investment discretion over the securities reported herein. The address for GRATIA is 1200 Brickell, Avenue #1220, Miami, Florida 33131.
- (5) Consists of (i) 520,834 shares of Class A common stock issued in the Private Placement to Ilya Kravets and (ii) 520,834 shares of Class A common stock issuable upon exercise of the common stock warrants to Mr. Kravets. Mr. Kravets holds the sole voting control and investment discretion over the securities and is affiliated with H.C. Wainwright & Co., LLC, a broker-deal and our placement agent for the Private Placement, with a registered address of 430 Park Ave, 3rd Floor, New York, NY 10022.
- (6) Consists of (i) 1,754,011 shares of Class A common stock issued in the Private Placement to Invus Public Equities, L.P., or Invus PE; (ii) 245,989 shares of Class A common stock issued in the Private Placement to Avicenna Life Sci Master Fund LP, or Avicenna; (iii) 9,135,473 shares of Class A common stock issuable upon exercise of the common stock warrants to Invus PE; (iv) 1,281,194 shares of Class A common stock issuable upon exercise of the common stock warrants to Avicenna; (v) 7,381,462 shares of Class A common stock issuable upon exercise of the pre-funded warrants to Invus PE; and (vi) 1,035,205 shares of Class A common stock issuable upon exercise of the pre-funded warrants to Avicenna. Invus Public Equities Advisors, LLC, or Invus PE Advisors, as the general partner of Invus PE, controls Invus PE and, accordingly, may be deemed to beneficially own the shares directly held by Invus PE. Invus Global Management, LLC, or Global Management, as the managing member of Invus PE Advisors, controls Invus PE Advisors and, accordingly, may be deemed to beneficially own the shares that Invus PE Advisors may be deemed to beneficially own. Siren, L.L.C., or Siren, as the managing member of Global Management, controls Global Management and, accordingly, may be deemed to beneficially own the shares that Global Management may be deemed to beneficially own. Avicenna Life Sci Master GP LLC, or Avicenna GP, as the general partner of Avicenna, controls Avicenna and, accordingly, may be deemed to beneficially own the Shares beneficially held by Avicenna. Ulys, as the managing member of Avicenna GP, controls Avicenna GP and, accordingly, may be deemed to beneficially own the shares that Avicenna GP may be deemed to beneficially own. Mr. Raymond Debbane, as the managing member of Siren and Ulys L.L.C., or Ulys, controls Siren and Ulys and, accordingly, may be deemed to beneficially own the shares that Siren and Ulys may be deemed to beneficially own. The address of Invus Public Equities and its affiliates is 750 Lexington Avenue, 30th Floor, New York, NY 10022.
- (7) Consists of (i) 2,083,334 shares of Class A common stock issued in the Private Placement to Mir Imran; (ii) 2,083,334 shares of Class A common stock issuable upon exercise of the common stock warrants to Mir Imran; (iii) 192,692 shares of Class A common stock underlying options that are exercisable within 60 days of October 31, 2025; (iv) 13,664 shares of Class A common stock held by InCube Labs, LLC, or ICL; (v) 22,411,124 shares of Class B common stock held by ICL; (vi) 7,694 shares of Class A common stock held by Rani Investment Corporation; (vii) 52,781 shares of Class A common stock held by InCube Ventures II; and (viii) 248,929 shares of Class A common stock issuable upon exchange of Class A common units of Rani Therapeutics, LLC held by InCube Ventures II. Mir Imran is the sole managing member of ICL, which is wholly-owned by Mir Imran and his family. InCube Ventures II is a limited partnership and its general partners are Mir Imran, Andrew Farquharson and Wayne Roe. Andrew Farquharson and Mir Imran are general partners of Rani Investment Corporation. The address of ICL, InCube Ventures II and Rani Investment Corporation is 2051 Ringwood Avenue, San Jose, California 95131.

- (8) Consists of (i) 8,500,000 shares of Class A common stock issued in the Private Placement; (ii) 25,000,000 shares of Class A common stock issuable upon exercise of the common stock warrants; and (iii) 16,500,000 shares of Class A common stock issuable upon exercise of the pre-funded warrants to RA Capital Healthcare Fund, L.P., or RACHF. RA Capital Management, L.P. is the investment manager for RACHF. The general partner of RA Capital Management, L.P. is RA Capital Management GP, LLC, of which Peter Kolchinsky and Rajeev Shah are the managing members. Each of RA Capital Management, L.P., RA Capital Management GP, LLC, Mr. Kolchinsky and Mr. Shah may be deemed to have voting and investment power over the shares held by RACHF. RA Capital Management, L.P., RA Capital Management GP, LLC, Mr. Kolchinsky and Mr. Shah disclaim beneficial ownership of such shares, except to the extent of any pecuniary interest therein. The principal business address of the persons and entities listed above is 200 Berkeley Street, 18th Floor, Boston, MA 02116.
- (9) Consists of (i) 4,250,000 shares of Class A common stock issued in the in the Private Placement to Samsara BioCapital, LP, or Samsara BioCapital; (ii) 4,250,000 shares of Class A common stock issued in the in the Private Placement to Samsara Opportunity Fund, LP, or Samsara Opportunity; (iii) 12,500,000 shares of Class A common stock issuable upon exercise of the common stock warrants to Samsara BioCapital; (iv) 12,500,000 shares of Class A common stock issuable upon exercise of the common stock warrants to Samsara Opportunity; (v) 8,250,000 shares of Class A common stock issuable upon exercise of the pre-funded warrants to Samsara BioCapital; and (vi) 8,250,000 shares of Class A common stock issuable upon exercise of the pre-funded warrants to Samsara Opportunity. Samsara BioCapital GP, LLC, or Samsara GP, is the sole general partner of Samsara BioCapital. Samsara Opportunity Fund GP, LLC, or Samsara Opportunity GP, is the sole general partner of Samsara Opportunity. Dr. Srinivas Akkaraju is the managing member of Samsara GP and Samsara Opportunity GP. Each of Samsara GP, Samsara Opportunity GP and Dr. Srinivas may be deemed to have voting and investment power over the shares held of record by Samsara LP. The address of the individual and entities referenced in this footnote is 628 Middlefield Road, Palo Alto, California 94301.
- (10) Consists of (i) 1,145,491 shares of Class A common stock issued in the in the Private Placement to Special Situations Cayman Fund, L.P., or Special Situations Cayman; (ii) 4,054,509 shares of Class A common stock issued in the in the Private Placement to Special Situations Fund III QP, L.P., or Special Situations III; (iii) 1,300,000 shares of Class A common stock issued in the in the Private Placement to Special Situations Life Sciences Fund, L.P., or Special Situations LS; (iv) 3,304,300 shares of Class A common stock issuable upon exercise of the common stock warrants to Special Situations Cayman; (v) 11,695,700 shares of Class A common stock issuable upon exercise of the common stock warrants to Special Situations III; (vi) 3,750,000 shares of Class A common stock issuable upon exercise of the common stock warrants to Special Situations LS; (vii) 2,158,809 shares of Class A common stock issuable upon exercise of the pre-funded warrants to Special Situations Cayman; (viii) 7,641,191 shares of Class A common stock issuable upon exercise of the pre-funded warrants to Special Situations III; and (ix) 2,450,000 shares of Class A common stock issuable upon exercise of the pre-funded warrants to Special Situations LS. AWM Investment Company, Inc., or AWM, is the investment adviser to each of the Special Situations Funds. David Greenhouse and Adam Stettner are the principal owners of AWM. Through their control of AWM, Messrs. Greenhouse and Stettner share voting and investment control over the portfolio securities of each of the Special Situations Funds. Messrs. Greenhouse and Stettner disclaim any beneficial ownership of the reported shares other than to the extent of any pecuniary interest each of them may have therein. The address of AWM, each of the Special Situations Funds and Messrs. Greenhouse and Stettner is 527 Madison Avenue, Suite 2600, New York, NY 10022.
- (11) Consists of (i) 4,400,000 shares of Class A common stock issued in the Private Placement to Stalex Cayman Limited, or Stalex; (ii) 25,000,000 shares of Class A common stock issuable upon exercise of the common stock warrants to Stalex; and (iii) 20,600,000 shares of Class A common stock issuable upon exercise of the pre-funded warrants to Stalex. Gunnar Dellner is the sole shareholder of Stalex. The address for Stalex is Panthera Corporate Services Limited, Suite 70702, 60 Nexus Way, KY1-9006, George Town, Cayman Islands.
- (12) Consists of (i) 2,083,334 shares of Class A common stock issued in the Private Placement to Stuywater Capital LLC, or Stuywater; and (ii) 2,083,334 shares of Class A common stock issuable upon exercise of the

common stock warrants to Stuywater. Noam Rubinstein, is the managing member of Stuywater and holds voting and dispositive power over the securities that are held by Stuywater. As a result, he may be deemed to have beneficial ownership (as determined under Section 13(d) of the Securities Exchange Act of 1934, as amended) of the securities reported herein that are held by Stuywater. Mr. Rubinstein is affiliated with H.C. Wainwright & Co., LLC, a broker-dealer and our placement agent for the Private Placement, with a registered address of 430 Park Ave, 3rd Floor, New York, NY 10022.

- (13) Consists of (i) 1,006,945 shares of Class A common stock issued in the Private Placement to UOITO; (ii) 1,006,945 shares of Class A common stock issuable upon exercise of the common stock warrants to UOITO; and (iii) 161,229 shares of Class A common stock held by BV Group. BV Group is equally owned by GRATIA, UOITO and VEGA. Andre Moll is the sole owner of UOITO and holds the voting control and investment discretion over the securities reported herein. The address for UOITO is Maschinengasse 5, 6330 Cham, Switzerland.
- (14) Consists of (i) 1,215,278 shares of Class A common stock issued in the Private Placement to VEGA; (ii) 1,215,278 shares of Class A common stock issuable upon exercise of the common stock warrants to VEGA; and (iii) 161,229 shares of Class A common stock held by BV Group. BV Group is equally owned by GRATIA, UOITO and VEGA. Pedro Moll is the sole owner of VEGA and holds the voting control and investment discretion over the securities reported herein. The address for VEGA is 1200 Brickell, Avenue #1220, Miami, Florida 33131.

PLAN OF DISTRIBUTION

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

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

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

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

In connection with the sale of the shares of Class A 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 securities in the course of hedging the positions they assume. The selling stockholders may also sell the shares of Class A common stock short and deliver these securities to close out their short positions, or loan or pledge the securities to broker-dealers that in turn may sell these shares of Class A common stock. 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 of Class A common stock offered by this prospectus, which securities such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

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

The aggregate proceeds to the selling stockholders from the sale of shares of Class A common stock offered by them will be the purchase price of the shares of Class A 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 shares of Class A 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.

We are required to pay certain fees and expenses incurred by us incident to the registration of the shares of Class A common stock. We have agreed to indemnify the selling stockholders against certain losses, claims, damages and liabilities, including liabilities under 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.

We agreed to keep this prospectus effective until the earlier of (i) the date that all shares covered by this registration statement may be resold by the selling stockholders without registration and without regard to any volume or manner-of-sale limitations by reason of Rule 144, without the requirement for us to be in compliance with the current public information under Rule 144 under the Securities Act or any other rule of similar effect or (ii) all of the shares of Class A common stock have been sold pursuant to this prospectus or Rule 144 under the Securities Act or any other rule of similar effect. The shares of Class A common stock will be sold only through registered or licensed brokers or dealers if required under applicable state securities laws. In addition, in certain states, the shares of Class A common stock covered hereby may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

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

LEGAL MATTERS

Cooley LLP, Palo Alto, California, will pass upon the validity of the shares of our Class A common stock offered by this prospectus.

EXPERTS

Marcum 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 (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), as set forth in their report, which is incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Marcum LLP's report, given on their authority as experts in accounting and auditing.

The consolidated financial statements for the year ended December 31, 2023 incorporated in this prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2024 have been so incorporated in reliance on the 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) of Ernst & Young LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

This prospectus is part of the registration statement on Form S-3 we filed with the SEC under the Securities Act and does not contain all the information set forth in the registration statement. Whenever a reference is made in this prospectus to any of our contracts, agreements or other documents, the reference may not be complete, and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated by reference into this prospectus for a copy of such contract, agreement or other document. Because we are subject to the information and reporting requirements of the Exchange Act, we file annual, quarterly and 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 <http://www.sec.gov>. Our website address is <https://www.ranitherapeutics.com>. Information contained on or accessible through our website is not a part of this prospectus and is not incorporated by reference herein, and the inclusion of our website address in this prospectus is an inactive textual reference only.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to “incorporate by reference” information from other documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus, while information that we file later with the SEC will automatically update and supersede the information in this prospectus. We incorporate by reference into this prospectus and the registration statement of which this prospectus is a part the information or documents listed below that we have filed with the SEC (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):

- our Annual Report on Form 10-K for the year ended December 31, 2024, filed with the SEC on [March 31, 2025](#);
- our Quarterly Reports on Form 10-Q for the quarterly periods ended March 31, 2025, June 30, 2025 and September 30, 2025 filed with the SEC on [May 13, 2025](#), [August 7, 2025](#) and [November 6, 2025](#), respectively;
- the information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2024, from our Definitive Proxy Statement on Schedule 14A, filed with the SEC on [April 16, 2025](#);
- our Current Reports on Form 8-K filed with the SEC on [April 9, 2025](#), [April 30, 2025](#), [May 6, 2025](#), [May 20, 2025](#), [May 29, 2025](#), [June 26, 2025](#), [July 16, 2025](#), [October 17, 2025](#) and [October 27, 2025](#); and
- the description of our Class A common stock, which is contained in Exhibit 4.2 of our Quarterly Report on Form 10-Q for the quarter ended June 30, 2022 filed with the SEC on [August 10, 2022](#).

All filings filed by us pursuant to the Exchange Act after the date of the initial filing of the registration statement of which this prospectus is a part and prior to effectiveness of the registration statement shall be deemed to be incorporated by reference into this prospectus.

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 securities 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 can request a copy of these documents and filings, at no cost, by writing or telephoning us at the following address or telephone number:

Rani Therapeutics Holdings, Inc.
2051 Ringwood Avenue
San Jose, California 95131
Attn: Secretary
(408) 457-3700