

## PROSPECTUS

**Up to \$10,000,000**  
**Class A Common Stock**

We have entered into a sales agreement, or the sales agreement, with Cowen and Company, LLC, or TD Cowen, dated December 15, 2023, relating to shares of our Class A common stock, par value \$0.01 per share, or Class A common stock, offered by this prospectus. In accordance with the terms of the sales agreement, we may offer and sell shares of our Class A common stock having an aggregate offering price of up to \$10,000,000 from time to time through TD Cowen acting as our agent or principal.

Our Class A common stock is listed on The Nasdaq Global Select Market, or Nasdaq, under the symbol "RPID." On December 22, 2023, the closing price of our Class A common stock, as reported on Nasdaq, was \$0.89 per share.

Sales of our Class A common stock, if any, under this prospectus will be made in sales deemed to be an "at-the-market offering" as defined in Rule 415(a)(4) promulgated under the Securities Act of 1933, as amended, or the Securities Act. TD Cowen is not required to sell any specific number of dollar amount of securities, but will act as our sales agent using commercially reasonable efforts consistent with its normal trading and sales practices, on mutually agreed terms between TD Cowen and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

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

As of December 12, 2023, the aggregate market value of our outstanding common stock held by non-affiliates, or public float, was approximately \$11.6 million, based on 42,409,105 shares of outstanding Class A common stock and Class B common stock, of which approximately 33.0 million shares were held by affiliates, and a price of \$1.06 per share, which was the price at which our Class A common stock was last sold on Nasdaq on such date. We have not offered any securities pursuant to General Instruction I.B.6 of Form S-3 during the prior 12-calendar-month period that ends on and includes the date of this prospectus. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities covered hereby in a public primary offering with a value exceeding more than one-third of our public float in any 12-month period so long as our public float remains below \$75,000,000.

We are an "emerging growth company" and a "smaller reporting company" under federal securities laws and as such, have elected to comply with reduced public company reporting requirements for this prospectus and the documents incorporated by reference herein and may elect to comply with reduced public company reporting requirements in future filings. See the section titled "Prospectus Summary — Implications of Being an Emerging Growth Company and Smaller Reporting Company."

**Our business and an investment in our Class A common stock involve significant risks. Before making an investment decision, you should review carefully and consider all of the information set forth in this prospectus and the documents incorporated by reference. These risks are described under the caption "Risk Factors" beginning on page S-7 of this prospectus and in the documents 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 passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.**

**TD Cowen**

The date of this prospectus is December 26, 2023

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We are responsible for the information contained and incorporated by reference in this prospectus and in any related free writing prospectus supplement we prepare or authorize. We have not authorized anyone to give you any other information, and we take no responsibility for any other information that others may give you. If you are in a jurisdiction where offers to sell, or solicitations of offers to purchase, the securities offered by this documentation are unlawful, or if you are a person to whom it is unlawful to direct these types of activities, then the offer presented in this document does not extend to you. The information contained in this document speaks only as of the date of this document, unless the information specifically indicates that another date applies. Our business, financial condition, results of operations and prospects may have changed since those dates.

## 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 the shelf registration process, we may sell an unspecified amount of securities from time to time. Under this prospectus, we may offer shares of our Class A common stock having an aggregate offering price of up to \$10,000,000 from time to time at prices and on terms to be determined by market conditions at the time of the offering. The \$10,000,000 of shares of our Class A common stock that may be sold under this prospectus are included in the \$200,000,000 of securities that may be sold under the registration statement.

If the information contained in this prospectus differs or varies from the information contained in any document incorporated by reference herein that was filed with the SEC before the date of this prospectus, you should rely on the information set forth in this prospectus. If any statement in one of these documents is inconsistent with a statement in another document having a later date (for example, a subsequently filed document deemed incorporated by reference in this prospectus), the statement in the document having the later date modifies or supersedes the earlier statement. Any statement so modified or superseded will not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

You should rely only on the information contained or incorporated by reference in this prospectus. We have not, and TD Cowen has not, authorized anyone to provide you with information that is in addition to or different from that contained or incorporated by reference in this prospectus or contained in any permitted free writing prospectuses we have authorized for use in connection with this offering. We and TD Cowen take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may provide.

The information contained in this prospectus and the documents incorporated by reference herein is accurate only as of their respective dates, regardless of the time of delivery of any such document or the time of any sale of our Class A common stock. Our business, financial condition, results of operations and prospects may have changed since those dates. It is important for you to read and consider all information contained or incorporated by reference in this prospectus in making your investment decision. You should read this prospectus, as well as the documents incorporated by reference herein, the additional information described under the section titled “Where You Can Find More Information” and “Incorporation by Reference” in this prospectus and any free writing prospectus that we have authorized for use in connection with this offering, before investing in our Class A common stock.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference in this prospectus were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

We use various trademarks and trade names in our business, including without limitation our corporate name and logo. All other trademarks or trade names referred to in this prospectus 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, to the fullest extent under applicable law, their rights thereto. This prospectus and the documents incorporated by reference herein also contain estimates, projections and other information concerning our industry, our business, and the markets for our products, including data regarding the estimated size of those markets. Information that is based on estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances reflected in this information. Unless otherwise expressly stated, we obtained this industry, business, market and other data from reports, research surveys, studies and similar data prepared by market research firms and other third parties, industry, pharmaceutical and general publications, government data and similar sources.

We are offering to sell, and seeking offers to buy, shares of our Class A common stock only in jurisdictions where such offers and sales are permitted. The distribution of this prospectus and the offering

of our Class A common stock in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of our Class A common stock and the distribution of this prospectus outside the United States. This prospectus does not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

As used in this prospectus, unless the context otherwise requires, references to the “company,” “we,” “us” and “our” refer to Rapid Micro Biosystems, Inc. and, where appropriate, our subsidiaries.

## PROSPECTUS SUMMARY

*This summary highlights selected information about us and this offering and does not contain all of the information that you should consider before investing in our securities. Before investing in our Class A common stock, you should read this entire prospectus carefully, including the section titled “Risk Factors” beginning on page S-7, our financial statements and accompanying notes and the other information contained and incorporated by reference in this prospectus.*

### Company Overview

We are an innovative life sciences technology company that enables the safe and efficient manufacture of pharmaceutical products through our rapid automated microbial quality control, or MQC, detection platform. We develop, manufacture, market and sell the Growth Direct system and related proprietary consumables, and value-added services to enable rapid MQC testing in the manufacture of biologics, cell and gene therapies, vaccines, sterile injectables, and other healthcare products. Our system delivers the power of industrial automation to bioprocessing and pharmaceutical manufacturing firms by modernizing and digitizing their MQC operations. Our Growth Direct platform, developed with over 15 years of active feedback from our customers, was purpose-built to meet the growing demands posed by the increasing scale, complexity, and regulatory scrutiny confronting global pharmaceutical manufacturing. Our Growth Direct platform comprises the Growth Direct system, optional laboratory information management system connection software (which the majority of our customers purchase), proprietary consumables, and comprehensive field service, validation services and post-warranty service contracts. Once embedded and validated in our customers’ facilities, our Growth Direct platform provides for recurring revenues through ongoing sales of consumables and service contracts.

Our technology fully automates and digitizes the process of pharmaceutical MQC and is designed to enable our customers to perform this critical testing process more efficiently, accurately, and securely. Our Growth Direct system accelerates time to results by several days, up to a 50% improvement over the traditional method, and reduces MQC testing to a simple two-step workflow, eliminating up to 85% of the manual steps of traditional MQC, generating significant time, operational, and cost savings for our customers. We seek to establish the Growth Direct platform as the trusted global standard in automated MQC by delivering the speed, accuracy, security, and data integrity that our customers depend on to ensure patient safety and consistent drug supply.

For additional information related to our business and operations, please refer to the reports incorporated herein by reference, as described under the caption “Incorporation by Reference.”

### Corporate History

Rapid Micro Biosystems, Inc., a Delaware corporation, was incorporated in December 2006. We completed our initial public offering of our Class A common stock in July 2021. Our executive offices are located at 1001 Pawtucket Boulevard West, Suite 280, Lowell, Massachusetts 01854 and our telephone number is (978) 349-3200. Our website address is [www.rapidmicrobio.com](http://www.rapidmicrobio.com). We do not incorporate the information on or accessible through our website into this prospectus, and you should not consider any information on, or that can be accessed through, our website as part of this prospectus.

The trademarks, trade names and service marks appearing in this prospectus are the property of their respective owners. Solely for convenience, the trademarks and trade names in this prospectus are referred to without the symbols ® and ™, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto. Our Class A common stock trades on Nasdaq under the symbol “RPID.”

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

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

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

We may take advantage of these exemptions for up to five years or such earlier time that we are no longer an emerging growth company. We would cease to be an emerging growth company on the date that is the earliest of (i) the last day of the fiscal year in which we have total annual gross revenues of \$1.235 billion or more; (ii) the last day of our fiscal year following the fifth anniversary of the date of the completion of our initial public offering; (iii) the date on which we have issued more than \$1.0 billion in nonconvertible debt during the previous three years; or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the SEC. We may choose to take advantage of some but not all of these exemptions. We have taken advantage of reduced reporting requirements in this prospectus. Accordingly, the information contained herein may be different from the information you receive from other public companies in which you hold stock. Additionally, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to avail ourselves of this exemption and, therefore, while we are an emerging growth company we will not be subject to new or revised accounting standards at the same time that they become applicable to other public companies that are not emerging growth companies. As a result of this election, our financial statements may not be comparable to those of other public companies that comply with new or revised accounting pronouncements as of public company effective dates.

We are also a “smaller reporting company,” meaning that-the-market value of our shares held by nonaffiliates plus the aggregate amount of gross proceeds to us as a result of this offering 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 after this offering 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 nonaffiliates is less than \$700 million. If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. Specifically, as a smaller reporting company, we may choose to present only the two most recent fiscal years of audited financial statements in our Annual Report on Form 10-K and, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

**THE OFFERING****Class A common stock offered by us**

Shares of our Class A common stock having an aggregate offering price of up to \$10,000,000.

**Total Class A common stock and Class B common stock to be outstanding after this offering**

Up to 48,323,987 shares of Class A common stock, assuming sales of 11,235,955 shares of our Class A common stock in this offering at an offering price of \$0.89 per share, which was the last reported sale price of our Class A common stock on Nasdaq on December 22, 2023, and 5,309,529 shares of Class B common stock. The actual number of shares issued will vary depending on how many shares of our Class A common stock we choose to sell and the prices at which such sales occur.

**Plan of Distribution**

“At-the-market offering” that may be made from time to time on Nasdaq through our sales agent, TD Cowen. See the section titled “Plan of Distribution” on page S-13 of this prospectus.

**Use of proceeds**

Our management will retain broad discretion regarding the allocation and use of the net proceeds. We currently intend to use the net proceeds from this offering, together with our existing cash, cash equivalents and marketable securities, primarily to fund working capital, capital expenditures and other general corporate purposes. See the section titled “Use of Proceeds” on page S-11 of this prospectus.

**Risk factors**

Investing in our Class A common stock involves significant risks. See the section titled “Risk Factors” on page S-7 of this prospectus and the other information included in, or incorporated by reference into this prospectus for a discussion of certain factors you should carefully consider before deciding to invest in our Class A common stock.

**Nasdaq symbol**

“RPID”

All information in this prospectus related to the number of shares of our Class A common stock and Class B common stock to be outstanding immediately after this offering is based on 37,088,032 shares of our Class A common stock and 5,309,529 shares of our Class B common stock outstanding as of September 30, 2023. The number of shares outstanding as of September 30, 2023 as used throughout this prospectus, unless otherwise indicated, excludes:

- 6,795,549 shares of Class A common stock issuable upon the exercise of stock options outstanding as of September 30, 2023, at a weighted average exercise price of \$2.66 per share;
- 1,782,401 shares of Class A common stock issuable upon the vesting of restricted stock units outstanding as of September 30, 2023;
- 3,212,318 shares of Class A common stock available for future issuance under our 2021 Incentive Award Plan as of September 30, 2023, as well as any increases in the number of shares of Class A common stock reserved for issuance thereunder;
- 873,158 shares of Class A common stock available for future issuance under our 2021 Employee Stock Purchase Plan as of September 30, 2023, as well as any increases in the number of shares of Class A common stock reserved for issuance thereunder; and
- 1,022,303 shares of our Class A common stock issuable upon the exercise of warrants outstanding as of September 30, 2023.

Unless otherwise stated, all information contained in this prospectus assumes no exercise of stock options or warrants after September 30, 2023 and reflects an assumed public offering price of \$0.89, which was the last reported sale price of our Class A common stock on Nasdaq on December 22, 2023.



## RISK FACTORS

*Investing in our Class A common stock involves a high degree of risk. Before you decide to invest in our Class A common stock, you should carefully consider the risks and uncertainties described below and in Part I, Item 1A “Risk Factors” of our most recent Annual Report on Form 10-K, as amended, and any subsequent Quarterly Reports on Form 10-Q we file after the date of this prospectus, together with all other information contained in this prospectus and in our filings with the SEC that we have incorporated by reference in this prospectus. If any of the following risks actually occurs, our business, financial condition or results of operations could be adversely affected, which, in turn, could have a negative impact on the price of our Class A common stock. In these circumstances, the market price of our Class A common stock could decline, and you may lose all or part of your investment.*

### **Additional Risks Related to Our Class A Common Stock and This Offering**

***We have broad discretion in the use of any net proceeds from this offering and may use them in ways that you and other stockholders may not approve.***

Our management will have broad discretion in the application of the net proceeds from this offering, including for any of the purposes described in the section titled “Use of Proceeds,” and you will not have the opportunity as part of your investment decision to assess whether the net proceeds are being used appropriately. Because of the number and variability of factors that will determine our use of any net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. Our management might not spend the net proceeds in ways that improve our results of operations or enhance the value of our Class A common stock. The failure by our management to apply these funds effectively could result in financial losses that could have a material adverse effect on our business, cause the price of our Class A common stock to decline and delay the development of our product candidates. Pending their use, we may invest the net proceeds from this offering in a manner that does not produce income or that loses value. See the section titled “Use of Proceeds” for more information.

***If you purchase shares of Class A common stock in this offering, you may suffer immediate and substantial dilution of your investment. In addition, we may issue additional equity or convertible debt securities in the future, which may result in additional dilution to investors.***

The shares sold in this offering, if any, will be sold from time to time at various prices. The price per share of any Class A common stock sold in this offering may exceed the net tangible book value per share of our Class A common stock outstanding prior to this offering. Therefore, if you purchase shares of our Class A common stock in this offering, you may pay a price per share that substantially exceeds our net tangible book value per share after this offering. To the extent shares are issued under outstanding options at exercise prices lower than the price of our Class A common stock in this offering, you will incur further dilution.

In addition, to the extent we raise additional capital in the future and we issue additional shares of common stock or securities convertible or exchangeable for our common stock, our then existing stockholders may experience dilution and the new securities may have rights senior to those of our Class A common stock offered in this offering.

***Future sales or issuances of our Class A common stock in the public market, or the perception of such sales, could depress the trading price of our Class A common stock.***

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

***The Class A common stock offered hereby will be sold in “at-the-market offerings,” and investors who buy shares at different times will likely pay different prices. The actual number of any shares we may issue and gross proceeds resulting from those sales, at any one time or in total, is uncertain.***

Subject to certain limitations in the sales agreement and compliance with applicable law, we have the discretion to deliver a placement notice to TD Cowen at any time throughout the term of the sales agreement. We will have discretion, subject to market demand, to vary the timing, prices and numbers of shares sold, and subject to the final determination by our board of directors or any restrictions we may place in any applicable placement notice, there is no minimum or maximum sales price. The number of shares that are sold by TD Cowen after delivering a placement notice will fluctuate based on the market price of our Class A common stock during the sales period and limits we set with TD Cowen in any instruction to sell shares, and the demand for our Class A common stock during the sales period. Investors who purchase shares in this offering at different times will likely pay different prices, and so may experience different outcomes in their investment results. Investors may experience a decline in the value of their shares as a result of sales made at prices lower than the prices they paid. Furthermore, because the price per share of each share sold will fluctuate based on the market price of our Class A common stock during the sales period, it is not possible at this stage to predict the number of shares or the gross proceeds to be raised in connection with those sales, if any, that will be ultimately issued.

## CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the information and documents incorporated by reference herein, contain forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. Any statements about our expectations, beliefs, plans, objectives, assumptions or future events or performance are not historical facts and may be forward-looking. These statements are often, but are not always, made through the use of words or phrases such as “aims,” “anticipates,” “believes,” “continue,” “could,” “designed to,” “estimates,” “expects,” “forecasts,” “goal,” “intends,” “may,” “plans,” “possible,” “potential,” “predicts,” “projects,” “seeks,” “strives,” “should,” “will,” and similar expressions or the negative of these terms. Accordingly, these statements involve estimates, assumptions, risks and uncertainties which could cause actual results to differ materially from those expressed in them. Any forward-looking statements are qualified in their entirety by reference to the factors discussed throughout this prospectus and the documents incorporated by reference herein, and in particular those factors referenced in the section “Risk Factors.”

This prospectus, any related free writing prospectus and the information and documents incorporated by reference herein contain forward-looking statements that are based on our management’s belief and assumptions and on information currently available to our management. These statements relate to future events or our future financial performance, and involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements. Forward-looking statements include, but are not limited to, statements about:

- our business strategy for our Growth Direct platform and systems;
- our future results of operations and financial position, including our expectations regarding revenue, gross margin, operating expenses and ability to generate cash flow;
- our expectations and assumptions related to our future funding requirements and available capital resources, which may be impacted by market uptake of our Growth Direct system, our management of inventory and supply chain, our research and development activities and the expansion of our sales, marketing, service, manufacturing and distribution capabilities;
- our ability to maintain and expand our customer base for our Growth Direct platform and systems;
- the effectiveness of enhancements of our sales processes;
- anticipated trends and growth rates in our business and in the markets in which we operate;
- our research and development activities and prospective new features, products and product approvals;
- our ability to anticipate market needs and successfully develop new and enhanced solutions to meet those needs, including prospective products;
- our ability to hire and retain necessary qualified employees to grow our business and expand our operations;
- our expectations regarding the potential impact of inflation and fluctuations in interest rates on our business and operating costs;
- our ability to remain in compliance with the listing requirements of Nasdaq;
- our expectations regarding the potential impact of ongoing conditions in the banking system and financial markets on our operations and financial results;
- our ability to adequately protect our intellectual property;
- our estimates of our expenses, capital requirements and needs for additional financing;
- our anticipated use of net proceeds from any offering of our securities pursuant to this prospectus;
- general economic, industry and market conditions, including rising interest rates and inflation; and
- other risks and uncertainties, including those listed under the caption “Risk Factors.”

These forward-looking statements are neither promises nor guarantees of future performance due to a variety of risks and uncertainties, many of which are beyond our control, which could cause actual results to differ materially from those indicated by these forward-looking statements, including, without limitation the risk factors and cautionary statements described in other documents that we file from time to time with the SEC, specifically under “Item 1A: Risk Factors” and elsewhere in our most recent Annual Report on Form 10-K, as amended, and any subsequent Quarterly Reports on Form 10-Q or Current Reports on Form 8-K, and the section of the prospectus titled “Risk Factors.”

The forward-looking statements in this prospectus, any related free writing prospectus and the documents incorporated by reference represent our views as of their respective dates. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we assume no obligation to update or revise any forward-looking statements except to the extent required by applicable law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the dates on which they were made.

This prospectus, any related free writing prospectus and the documents incorporated by reference also contain estimates, projections and other information concerning our industry, our business, and the markets for our products, including data regarding the estimated size of those markets. Information that is based on estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances reflected in this information. Unless otherwise expressly stated, we obtained this industry, business, market and other data from reports, research surveys, studies and similar data prepared by market research firms and other third parties, industry, pharmaceutical and general publications, government data and similar sources.

**USE OF PROCEEDS**

We may issue and sell shares of our Class A common stock having aggregate sales proceeds of up to \$10,000,000 from time to time. The amount of proceeds from this offering will depend upon the number of shares of our Class A common stock sold and the market price at which they are sold. There can be no assurance that we will be able to sell any shares under or fully utilize the sales agreement with TD Cowen as a source of financing. Therefore, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time.

We intend to use any net proceeds from this offering primarily to fund working capital, capital expenditures and other general corporate purposes. We may temporarily invest the net proceeds in a variety of capital preservation instruments, including investment grade, interest bearing instruments and U.S. government securities, until they are used for their stated purpose. We have not determined the amount of net proceeds to be used specifically for such purposes. As a result, management will retain broad discretion over the allocation of net proceeds.

**DIVIDEND POLICY**

We have never declared or paid any cash dividends on our capital stock. We currently intend to retain all available funds and future earnings, if any, for the operation and expansion of our business and do not anticipate declaring or paying any dividends in the foreseeable future. Any future determination related to our dividend policy will be made at the discretion of our board of directors after considering our financial condition, results of operations, capital requirements, contractual requirements, business prospects and other factors the board of directors deems relevant, and subject to the restrictions contained in any future financing instruments.

## PLAN OF DISTRIBUTION

We have entered into a sales agreement with TD Cowen, under which we may issue and sell from time to time up to \$10,000,000 of our Class A common stock through or to TD Cowen as our sales agent or principal. Sales of our Class A common stock, if any, will be made at market prices by any method that is deemed to be an “at-the-market offering” as defined in Rule 415 under the Securities Act.

TD Cowen will offer our Class A common stock subject to the terms and conditions of the sales agreement on a daily basis or as otherwise agreed upon by us and TD Cowen. We will designate the maximum amount of Class A common stock to be sold through TD Cowen on a daily basis or otherwise determine such maximum amount together with TD Cowen. Subject to the terms and conditions of the sales agreement, TD Cowen will use its commercially reasonable efforts to sell on our behalf all of the shares of Class A common stock requested to be sold by us. We may instruct TD Cowen not to sell Class A common stock if the sales cannot be effected at or above the price designated by us in any such instruction. TD Cowen or we may suspend the offering of our Class A common stock being made through TD Cowen under the sales agreement upon proper notice to the other party. TD Cowen and we each have the right, by giving written notice as specified in the sales agreement, to terminate the sales agreement in each party’s sole discretion at any time.

The aggregate compensation payable to TD Cowen as sales agent equals up to 3.0% of the gross sales price of the shares sold through it pursuant to the sales agreement. We have also agreed to reimburse TD Cowen up to \$75,000 of TD Cowen’s actual outside legal expenses incurred by TD Cowen in connection with this offering. We estimate that the total expenses of the offering payable by us, excluding commissions payable to TD Cowen under the sales agreement, will be approximately \$620,000.

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

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

We will report at least quarterly the number of shares of Class A common stock sold through TD Cowen under the sales agreement, the net proceeds to us and the compensation paid by us to TD Cowen in connection with the sales of Class A common stock.

Settlement for sales of Class A common stock will occur, unless the parties agree otherwise, on the second business day (prior to May 28, 2024) or first business day (on or after May 28, 2024) that is also a trading day following the date on which any sales were made in return for payment of the net proceeds to us. There is no arrangement for funds to be received in an escrow, trust or similar arrangement.

In connection with the sales of our Class A common stock on our behalf, TD Cowen will be deemed to be an “underwriter” within the meaning of the Securities Act, and the compensation paid to TD Cowen will be deemed to be underwriting commissions or discounts. We have agreed in the sales agreement to provide indemnification and contribution to TD Cowen against certain liabilities, including liabilities under the Securities Act. As sales agent, TD Cowen will not engage in any transactions that stabilizes our Class A common stock.

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

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

## LEGAL MATTERS

Certain legal matters in connection with this offering and the validity of the securities offered by this prospectus will be passed upon for us by Goodwin Procter LLP, New York, New York. Cowen and Company, LLC is being represented in connection with this offering by Covington & Burling LLP, New York, New York.

## EXPERTS

The financial statements incorporated in this prospectus by reference to the Annual Report on Form 10-K for the fiscal year ended December 31, 2022, have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

## WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of a registration statement on Form S-3 that we have filed with the SEC. This prospectus, filed as part of the registration statement, does not contain all the information set forth in the registration statement and its exhibits and schedules, portions of which have been omitted as permitted by the rules and regulations of the SEC. For further information about us, we refer you to the registration statement and to its exhibits and schedules. Certain information in the registration statement has been omitted from this prospectus in accordance with the rules of the SEC.

We are subject to the reporting and information requirements of the Exchange Act and, in accordance therewith, file annual, quarterly and special reports, proxy statements and other information with the SEC. These documents may be accessed through the SEC's electronic data gathering, analysis and retrieval system, or EDGAR, via electronic means, including the SEC's home page on the Internet ([www.sec.gov](http://www.sec.gov)). Written requests for such copies should be directed to Rapid Micro Biosystems, Inc., Attn: Investor Relations, 1001 Pawtucket Boulevard West, Suite 280, Lowell, Massachusetts 01854, or via telephone at (978) 349-3200.

We have the authority to designate and issue more than one class or series of stock having various preferences, conversion and other rights, voting powers, restrictions, limitations as to dividends, qualifications, and terms and conditions of redemption. See the section titled "Description of Capital Stock." We will furnish a full statement of the relative rights and preferences of each class or series of our stock which has been so designated and any restrictions on the ownership or transfer of our stock to any shareholder upon request and without charge. Information contained on our website is not incorporated by reference into this prospectus and, therefore, is not part of this prospectus or any accompanying prospectus supplement.



## INCORPORATION BY REFERENCE

The SEC allows us to incorporate by reference the information and reports we file with it, which means that we can disclose important information to you by referring you to these documents. The information incorporated by reference is an important part of this prospectus, and information that we file later with the SEC will automatically update and supersede the information already incorporated by reference. We are incorporating by reference the documents listed below, which we have previously filed with the SEC (File No. 001-40592) other than information in such documents that is deemed to be furnished and not filed:

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, filed with the SEC on [March 10, 2023](#), as amended on [May 15, 2023](#);
- the information specifically incorporated by reference into our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, as amended, from our definitive proxy statement on Schedule 14A (other than information furnished rather than filed), filed with the SEC on [March 21, 2023](#);
- our Quarterly Reports on Form 10-Q for the fiscal quarters ended March 31, 2023, June 30, 2023 and September 30, 2023, filed with the SEC on [May 9, 2023](#), [August 4, 2023](#) and [November 3, 2023](#), respectively;
- our current Reports on Form 8-K filed with the SEC on [May 8, 2023](#), [July 18, 2023](#), [September 19, 2023](#) and [September 26, 2023](#); and
- the description of our capital stock contained in our Registration Statement on Form 8-A (File No. 001-40592) as filed with the SEC on [July 12, 2021](#), including any amendments or reports filed for the purpose of updating such description, including [Exhibit 4.7](#) to our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, as filed with the SEC on March 10, 2023 and as amended on May 15, 2023.

All reports and other documents we subsequently file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act, through the termination of the offering of the offered securities described in this prospectus, including all such reports and other documents filed with the SEC after the date of the initial filing of the registration statement of which this prospectus forms a part and prior to the effectiveness of such registration statement, but excluding any information furnished to, rather than filed with, the SEC, will also be incorporated by reference into this prospectus and deemed to be part of this prospectus from the date of the filing of such reports and documents. We are not, however, incorporating by reference any documents or portions thereof, whether specifically listed above or filed in the future, that are not deemed “filed” with the SEC, including any information furnished pursuant to Items 2.02 or 7.01 of Form 8-K or related exhibits furnished pursuant to Item 9.01 of Form 8-K.

Upon request, either orally or in writing, we will provide, without charge, to each person, including any beneficial owner, to whom a copy of this prospectus is delivered, a copy of the documents incorporated by reference into this prospectus but not delivered with the prospectus. You may request a copy of these filings, and any exhibits we have specifically incorporated by reference as an exhibit in this prospectus, at no cost by writing us at the following address: Rapid Micro Biosystems, Inc., Attn: Investor Relations, 1001 Pawtucket Boulevard West, Suite 280, Lowell, Massachusetts 01854, or via telephone at (978) 349-3200.

This prospectus is part of a registration statement we filed with the SEC. We have incorporated exhibits into this registration statement. You should read the exhibits carefully for provisions that may be important to you.

You should rely only on the information incorporated by reference or provided in this prospectus or any prospectus supplement. We have not authorized anyone 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 or in the documents incorporated by reference is accurate as of any date other than the date on the front of this prospectus or those documents.



**Up to \$10,000,000**

**Class A Common Stock**

**PROSPECTUS**

**TD Cowen**

December 26, 2023

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