

PROSPECTUS SUPPLEMENT (To Prospectus dated July 27, 2022)

\$100,000,000



**S I N G U L A R
G E N O M I C S**

Common Stock

We have entered into a sales agreement, or the Sales Agreement, with Cowen and Company, LLC, or Cowen, relating to the sale of shares of our common stock, par value \$0.0001 per share, offered by this prospectus supplement and the accompanying prospectus. In accordance with the terms of the Sales Agreement, we may offer and sell shares of our common stock having an aggregate offering price of up to \$100,000,000 from time to time through Cowen, acting as our agent.

Our common stock is listed on the Nasdaq Global Select Market under the symbol "OMIC." On July 12, 2022 the closing price for our common stock, as reported on the Nasdaq Global Select Market, was \$4.20 per share.

Sales of our common stock, if any, under this prospectus supplement and the accompanying 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. Cowen is not required to sell any specific number or dollar amount of securities, but will act as sales agent using commercially reasonable efforts consistent with its normal trading and sales practices, on mutually agreed terms between Cowen and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

Cowen will be entitled to a commission equal to 3.0% of the aggregate gross proceeds of any shares of common stock sold under the Sales Agreement. In connection with the sale of our common stock on our behalf, Cowen will be deemed to be an "underwriter" within the meaning of the Securities Act and the compensation paid to Cowen will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to 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 "Plan of Distribution" beginning on page SA-11 for additional information regarding the compensation to be paid to Cowen.

INVESTING IN OUR SECURITIES INVOLVES SIGNIFICANT RISKS. SEE "[RISK FACTORS](#)" BEGINNING ON PAGE SA-6 OF THIS PROSPECTUS SUPPLEMENT AS WELL AS THE RISK FACTORS THAT ARE INCORPORATED BY REFERENCE INTO THIS PROSPECTUS SUPPLEMENT FROM OUR FILINGS WITH THE SECURITIES AND EXCHANGE COMMISSION, BEFORE INVESTING IN ANY OF OUR SECURITIES.

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

Cowen

The date of this prospectus supplement is July 27, 2022.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus are part of a registration statement on Form S-3 that we have filed with the Securities and Exchange Commission, or SEC, utilizing a “shelf” registration process. By using a shelf registration statement, we may offer shares of our common stock having an aggregate offering price of up to \$100,000,000 from time to time under this prospectus supplement at prices and on terms to be determined by market conditions at the time of offering.

This prospectus supplement relates to the offering of our common stock. Before buying any of the common stock that we are offering, we urge you to carefully read this prospectus supplement, together with the information incorporated by reference as described under the headings “Where You Can Find More Information” and “Incorporation of Certain Information by Reference” in this prospectus supplement. These documents contain important information that you should consider when making your investment decision.

We provide information to you about this offering of our common stock in two separate documents that are bound together: (1) this prospectus supplement, which describes the specific details regarding this offering; and (2) the accompanying prospectus, which provides general information, some of which may not apply to this offering. Generally, when we refer to this “prospectus,” we are referring to both documents combined. If information in this prospectus supplement is inconsistent with the accompanying prospectus, you should rely on this prospectus supplement. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in any document incorporated by reference in this prospectus supplement, on the other hand, you should rely on the information in this prospectus supplement. If any statement in one of these documents is inconsistent with a statement in another document having a later date—for example, a document incorporated by reference in this prospectus supplement—the statement in the document having the later date modifies or supersedes the earlier statement.

You should rely only on the information contained in or incorporated by reference in this prospectus supplement and in any free writing prospectus that we have authorized for use in connection with this offering. We have not, and Cowen has not, authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and Cowen is not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus supplement, the documents incorporated by reference in this prospectus supplement, and in any free writing prospectus that we have authorized for use in connection with this offering, is accurate only as of the date of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates. You should read this prospectus supplement, the documents incorporated by reference in this prospectus, and any free writing prospectus that we have authorized for use in connection with this offering, in their entirety before making an investment decision.

This prospectus supplement, the accompanying prospectus and the information incorporated herein or therein by reference contains market data, industry statistics and other data that have been obtained or compiled from information made available by independent third parties. We have not independently verified the accuracy and completeness of such data.

As used in this prospectus supplement, unless the context otherwise requires, references to “Singular,” “company,” “we,” “us” and “our” refer to Singular Genomics Systems, Inc.

All trademarks, service marks and trade names appearing in this prospectus supplement are the property of their respective holders. Use or display by us of other parties’ trademarks, trade dress or products in this prospectus supplement is not intended to, and does not, imply a relationship with, or endorsements or sponsorship of, us by the trademark or trade dress owners.

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights certain information about us, our business, this offering and selected information contained elsewhere or incorporated by reference into this prospectus supplement. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our common stock. For a more complete understanding of our Company and this offering, we encourage you to read and consider carefully the more detailed information in this prospectus supplement, the accompanying prospectus and any related free writing prospectus, including the information set forth in the section titled "Risk Factors" on page SA-6 in this prospectus supplement, and under similar headings in the other documents that are filed after the date hereof and incorporated by reference into this prospectus supplement and any related free writing prospectus in their entirety before making an investment decision.

Overview

We are a life science technology company that is leveraging novel, next-generation sequencing ("NGS") and multiomics technologies to empower researchers and clinicians. We developed a unique and proprietary NGS technology, which we refer to as our Sequencing Engine. This Sequencing Engine is the foundational platform technology that forms the basis of our products in development as well as our core product tenets: power, speed, flexibility and accuracy. We are currently developing two products that are purpose-built to target applications in which these core product tenets matter most. Our first product, the G4, targets the NGS market and is comprised of an instrument and associated menu of consumable kits. Our second product in development, the PX, combines single-cell analysis, spatial analysis, genomics and proteomics in one integrated instrument to offer a versatile multiomics solution.

The core of our Sequencing Engine is comprised of unique and proprietary chemistry, including novel chemical compounds, polymers and enzymes. This chemistry is designed to produce high sequencing accuracy and rapid cycle times that we believe can drive improvements in NGS. To take full advantage of the proprietary chemistry, we have developed and continue to develop purpose-built instrumentation consisting of high-speed, high-resolution imaging and innovative fluidic design. We believe that our Sequencing Engine, together with our proprietary innovations in molecular biology techniques, will enable differentiated applications in fast-growing markets, supported by our intellectual property portfolio.

The G4 is a benchtop next-generation sequencer designed to produce fast and accurate sequencing results. The G4 is designed to target the NGS market in particular applications that require power, speed, flexibility and accuracy. We believe the G4 will expand and accelerate the use of DNA sequencing across a wide range of applications, such as identifying cancer-associated genetic mutations, deep sequencing to detect minimum residual disease in circulating cell-free DNA, profiling the immune system, analyzing single-cell RNA transcription and rapidly sequencing exomes and whole genomes. We are executing a three-step commercialization plan for the G4 consisting of: (i) collaborating with select partners to conduct beta pilot tests, which we completed in 2021; (ii) collaborating with potential customers in our early access program, which we concluded in the second quarter of 2022; and (iii) offering the G4 broadly to the market. We commercially launched the G4 in December of 2021. We commenced shipping the G4 in the second quarter of 2022.

The PX is our second product in development and is a multiomics platform designed to target the markets for single-cell, spatial analysis and proteomics. The PX will leverage our Sequencing Engine as a readout mechanism to provide a high-resolution view of biology at the single-cell and tissue level. We believe the PX, when launched, will be a high-throughput, versatile platform capable of measuring

levels of RNA transcription, protein expression and sequence specific information directly in cells and tissues. We believe the PX will have broad application across many areas of biology. We are initially focused on applications in oncology and immunology, with future expansion into other applications such as neurology. We are currently in an advanced prototype development stage for the PX. We anticipate initiating a technology access program in the second half of 2022, which will be similar to our early access program, but we intend to initially bring samples and collaborators in-house.

Corporate Information

We were incorporated in Delaware in 2016. Our principal executive offices are located at 3010 Science Park Road, San Diego, California 92121. Our telephone number is (858) 333-7830. Our website address is www.singulargenomics.com. Information contained on the website is not incorporated by reference into this prospectus supplement. We have included our website address in this prospectus supplement solely as an inactive textual reference.

Trademarks

Singular Genomics, the Singular Genomics logo and our other registered or common law trademarks appearing in this prospectus supplement are the property of Singular Genomics Systems, Inc. This prospectus supplement contains references to our trademarks and service marks and to those belonging to other entities. Solely for convenience, trademarks and trade names referred to in this prospectus supplement, including logos, artwork and other visual displays, may appear without the ®, TM or SM symbols, but such references are not intended to indicate in any way that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensor to these trademarks and trade names. We do not intend our use or display of other entities' trade names, trademarks or service marks to imply a relationship with, or endorsement or sponsorship of us by, any other entity.

We are an Emerging Growth Company

We currently are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, as amended, or JOBS Act. We will remain an emerging growth company until the earliest to occur of: (i) the last day of the fiscal year in which we have more than \$1.07 billion in annual revenue; (ii) the date we qualify as a "large accelerated filer," as defined in Rule 12b-2 under the Exchange Act, with at least \$700 million of equity securities held by non-affiliates; (iii) the issuance, in any three-year period, by us of more than \$1.0 billion in non-convertible debt securities; and (iv) the last day of the fiscal year ending after the fifth anniversary of our initial public offering. As a result of this status, we have taken advantage of reduced reporting requirements in this prospectus supplement that are applicable to other publicly traded entities that are not emerging growth companies and may elect to take advantage of other exemptions from reporting requirements in our future filings with the SEC. In addition, Section 107 of the JOBS Act provides that an emerging growth company may take advantage of an extended transition period for complying with new or revised accounting standards, delaying the adoption of these accounting standards until they would apply to private companies. Even after we no longer qualify as an emerging growth company, we may qualify as a "smaller reporting company," which would allow us to take advantage of many of the same exemptions from disclosure requirements including reduced disclosure obligations regarding executive compensation in this prospectus supplement and our periodic reports and proxy statements, if either (i) the market value of our stock held by non-affiliates is less than \$250 million or (ii) our annual revenue is less than \$100 million during the most recently completed fiscal year and the market value of our stock held by non-affiliates is less than \$700 million.

THE OFFERING

Common stock offered by us:	Shares of our common stock having an aggregate offering price of up to \$100,000,000.
Common stock to be outstanding after this offering:	Up to 94,318,986 shares (as more fully described in the notes following this table), assuming sales of 23,809,523 shares of our common stock in this offering at an assumed offering price of \$4.20 per share, which was the last reported sale price of our common stock on the Nasdaq Global Select Market on July 12, 2022. The actual number of shares issued will vary depending on the sales price under this offering.
Plan of Distribution:	“At the market offering” that may be made from time to time through our sales agent, Cowen. See “Plan of Distribution” on page SA-11 of this prospectus supplement.
Use of Proceeds:	We currently intend to use the net proceeds from this offering for our general corporate and working capital purposes. See “Use of Proceeds” on page SA-10 of this prospectus supplement.
Risk Factors:	Investing in our common stock involves significant risks. See “Risk Factors” on page SA-6 of this prospectus supplement, and under similar headings in other documents incorporated by reference into this prospectus supplement.
Nasdaq Global Select Market symbol:	OMIC

All information in this prospectus supplement related to the number of shares of our common stock to be outstanding immediately after this offering is based on 70,509,463 shares of our common stock outstanding as of March 31, 2022, and unless otherwise indicated, excludes:

- 9,139,344 shares of common stock issuable upon the exercise of options outstanding as of March 31, 2022, with a weighted-average exercise price of \$7.00 per share;
- 1,677,569 shares of common stock which have been issued as of March 31, 2022 upon early exercise of stock options, but are not outstanding as they are subject to a right of repurchase;
- 1,119,863 shares of common stock issuable upon the exercise of options granted after March 31, 2022, at a weighted-average exercise price of \$3.86 per share;
- 7,006,507 shares of common stock reserved for future issuance under our 2021 Equity Incentive Plan, or the 2021 Plan, which includes an annual evergreen increase;
- 1,394,991 shares of common stock reserved for issuance under our 2021 Employee Stock Purchase Plan, or the 2021 ESPP, which includes an annual evergreen increase; and
- 2,500 shares of Series A Common Stock Equivalent Convertible Preferred Stock convertible into 2,500,000 shares of common stock, subject to certain limitations.

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Unless otherwise stated, all information contained in this prospectus supplement assumes no exercise of stock options after March 31, 2022 and reflects an assumed public offering price of \$4.20 per share, which was the last reported sale price of our common stock on the Nasdaq Global Select Market on July 12, 2022.

RISK FACTORS

Investing in our common stock is speculative and involves a high degree of risk. Before investing in our common stock, you should consider carefully the risks described below, together with the risks described in the section entitled "Risk Factors" in our most recent Annual Report on Form 10-K, and our most recent Quarterly Reports on Form 10-Q, which are incorporated by reference in their entirety, as well as the other information contained in or incorporated by reference in this prospectus supplement, including our financial statements and the related notes thereto. If any of the following risks occur, our business, financial condition, results of operations and future growth prospects could be materially and adversely affected. In these circumstances, the market price of our common stock could decline, and you may lose all or part of your investment. This prospectus supplement also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of a number of factors, including the risks described below. See "Special Note Regarding Forward-Looking Statements."

Risks Related to This Offering

We have broad discretion in the use of the net proceeds from this offering and may invest or spend the proceeds in ways with which you do not agree and in ways that may not yield a return on your investment.

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," as well as our existing cash and short-term investments, and you will be relying on the judgment of our management regarding such application. You will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used effectively. Our management might not apply the net proceeds or our existing cash and short-term investments in ways that ultimately increase the value of your investment. If we do not invest or apply the net proceeds from this offering or our existing cash and short-term investments in ways that enhance stockholder value, we may fail to achieve expected results, which could cause our stock price to decline. Pending their use, we may invest the net proceeds from this offering in short-term interest-bearing investment-grade securities or short-term U.S. Treasury securities with insignificant rates of return. These investments may not yield a favorable return to our stockholders.

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

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

The actual number of shares we will issue under the Sales Agreement, at any one time or in total, is uncertain.

Subject to certain limitations in our Sales Agreement with Cowen and in compliance with applicable law, we have the discretion to deliver a placement notice to Cowen at any time throughout the term of the Sales Agreement. The number of shares sold by Cowen after delivering a placement notice will fluctuate based on the market price of the common shares during the sales period and the price and volume limits we set with Cowen. Because the price per share of each share sold will fluctuate based

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on the market price of our common shares during the sales period, it is not possible at this stage to predict the number of shares that will be issued or the resulting gross proceeds.

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

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

Purchasers may experience immediate dilution in the book value per share of the common stock purchased in the offering.

The shares sold in the public offering, if any, will be sold from time to time at various prices. However, it is possible that the offering price of our common stock will be substantially higher than the net tangible book value per share of our outstanding common stock. Therefore, if you purchase shares of our common stock in this offering, you may pay a price per share that substantially exceeds our net tangible book value per share after giving effect to this offering. You will also experience additional dilution upon the exercise of options, vesting of restricted stock units, including those options and restricted stock units currently outstanding and those granted in the future, the issuance of restricted stock or other equity awards under our stock incentive plans, or upon conversion of any convertible notes currently outstanding or that may be issued in the future. In addition, in the past, we have issued options to acquire common stock at prices significantly below the offering price and have granted restricted stock units. To the extent these outstanding options are ultimately exercised or these restricted stock units vest, you will incur additional dilution.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the information incorporated by reference in this prospectus supplement, and any free writing prospectus that we authorize for use in connection with this offering, contains and may contain certain statements that constitute “forward-looking statements” within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. The words “aim,” “anticipate,” “assume,” “believe,” “can,” “contemplate,” “continue,” “could,” “due,” “estimate,” “expect,” “goal,” “intend,” “may,” “objective,” “ongoing,” “plan,” “potential,” “project,” “predict,” “seek,” “should,” “target,” “will,” and “would” and similar expressions and variations thereof are intended to identify forward-looking statements, but are not the exclusive means of identifying such statements. Those statements appear in this prospectus supplement and the documents incorporated herein by reference, particularly in the sections entitled “Prospectus Summary,” “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Business,” and include statements regarding the intent, belief or current expectations of the Company and management that are subject to known and unknown risks, uncertainties and assumptions.

Forward-looking statements include, but are not limited to, statements about:

- estimates of our addressable market, market growth, future revenue, expenses, capital requirements and our needs for additional financing;
- our ability to timely and successfully implement our commercialization plan for the G4 and planned PX;
- the implementation of our business model and strategic plans for the G4 and planned PX;
- our expectations regarding the rate and degree of market acceptance of the G4 and planned PX;
- our ability to compete with competitive companies and technologies in our industry;
- our ability to manage and grow our business and commercialize the G4 and planned PX;
- our ability to develop and commercialize new products and development product enhancements;
- the impact of the COVID-19 pandemic on our business;
- our ability to establish and maintain intellectual property protection for our products or avoid or defend claims of infringement;
- our ability to fulfill our contractual commitments;
- the performance of third-party manufacturers and suppliers;
- our ability to effectively manufacture our products;
- the potential effects of government regulation;
- our ability to hire and retain key personnel and to manage our future growth effectively;
- our ability to obtain additional financing on favorable terms to us or at all;
- our expectations regarding use of proceeds from our initial public offering or subsequent offerings;
- the impact of local, regional, national and international economic conditions and events;
- our expectations about market trends;
- our expectations regarding the period during which we will qualify as an emerging growth company under the JOBS Act; and
- our anticipated use of our existing resources and the proceeds from this offering.

This prospectus supplement and the information incorporated by reference in this prospectus supplement also contain statements that are based on the current expectations of our Company and

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management. These forward-looking statements speak only as of the date of this prospectus supplement. You are cautioned that any such forward-looking statements are not guarantees of future performance and involve risks and uncertainties, and that actual results may differ materially from those projected in the forward-looking statements as a result of various factors.

Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely upon forward-looking statements as predictions of future events. The events and circumstances reflected in the forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. The risks, uncertainties and assumptions that could cause actual results to differ materially from those anticipated or implied in our forward-looking statements include, but are not limited to, those set forth under the section entitled "Risk Factors", together with all of the other information appearing or incorporated by reference into this prospectus supplement.

Except as required by applicable law, including the securities laws of the United States and the rules and regulations of the SEC, we do not plan to publicly update or revise any forward-looking statements contained herein after we distribute this prospectus supplement, whether as a result of any new information, future events or otherwise.

USE OF PROCEEDS

We may issue and sell shares of our common stock having aggregate sales proceeds of up to \$100.0 million from time to time. Because there is no minimum offering amount required as a condition to close this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time. We are not obligated under our Sales Agreement to sell any shares of common stock, and we may not sell any shares under or fully utilize the Sales Agreement with Cowen as a source of financing.

We currently intend to use the net proceeds from this offering to fund the commercialization of our G4 and product development and commercialization of our PX, to develop or acquire new products or technologies that are complementary to our business (although we have no such acquisition commitments as of the date of this prospectus supplement), and for our general corporate and working capital purposes. We may invest the net proceeds from this offering in short-term interest-bearing investment-grade securities or U.S. Treasury securities with insignificant rates of return, or we may hold such proceeds as cash until required for these business expenditures. We have not yet determined the specific amounts of net proceeds to be used for each of these ongoing business activities. As a result, we will retain broad discretion over the allocation of the net proceeds from this offering for our business use.

PLAN OF DISTRIBUTION

We have entered into a Sales Agreement with Cowen, under which we may issue and sell from time to time up to \$100,000,000 of our common stock through Cowen as our sales agent. Sales of our common stock, if any, will be made at market prices by any method that is deemed to be an “at the market offering” as defined in Rule 415(a)(4) under the Securities Act, including sales made directly on the Nasdaq Global Select Market or any other trading market for our common stock.

Cowen will offer our common stock subject to the terms and conditions of the Sales Agreement on a daily basis or as otherwise agreed upon by us and Cowen. We will designate the maximum amount of common stock to be sold through Cowen on a daily basis or otherwise determine such maximum amount together with Cowen. Subject to the terms and conditions of the Sales Agreement, Cowen will use its commercially reasonable efforts to sell on our behalf all of the shares of common stock requested to be sold by us. We may instruct Cowen not to sell common stock if the sales cannot be effected at or above the price designated by us in any such instruction. Cowen or we may suspend the offering of our common stock being made through Cowen under the Sales Agreement upon proper notice to the other party. 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 Cowen as sales agent equals 3.0% of the gross sales price of the shares sold through it pursuant to the Sales Agreement. We have also agreed to reimburse Cowen up to \$75,000 of Cowen’s actual outside legal expenses incurred by Cowen in connection with this offering, and for certain other expenses. We estimate that the total expenses of the offering payable by us, excluding commissions and reimbursements payable to Cowen under the Sales Agreement, will be approximately \$250,000.

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

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

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

Settlement for sales of common stock will occur, unless the parties agree otherwise, on the second business day 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 common stock on our behalf, Cowen will be deemed to be an “underwriter” within the meaning of the Securities Act, and the compensation paid to Cowen will be deemed to be underwriting commissions or discounts. We have agreed in the Sales Agreement to provide indemnification and contribution to Cowen against certain liabilities, including liabilities under the Securities Act. As sales agent, Cowen will not engage in any transactions that stabilizes our common stock.

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Our common stock is listed on the Nasdaq Global Select Market and trades under the symbol "OMIC." The transfer agent of our common stock is Continental Stock Transfer & Trust Company.

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

The validity of the securities offered by this prospectus supplement will be passed upon by Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP, San Diego, California. Certain partners and certain investment partnerships comprised of partners of Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP own an interest representing less than one percent of the shares of our common stock. Cowen and Company, LLC is being represented in connection with this offering by Cooley LLP, New York, New York.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2021, 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 Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and other reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at www.sec.gov. Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K, including any amendments to those reports, and other information that we file with or furnish to the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act can also be accessed free of charge through the Internet. These filings will be available as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC.

We have filed with the SEC a registration statement on Form S-3 under the Securities Act, of which this prospectus supplement and the accompanying prospectus form a part, relating to the offering of these securities. The registration statement, including the attached exhibits, contains additional relevant information about us and the securities. This prospectus does not contain all of the information set forth in the registration statement. The registration statement and the documents referred to below under "Incorporation by Reference" are also available on our website, www.singulargenomics.com. We have not incorporated by reference into this prospectus the information on our website, and you should not consider it to be a part of this prospectus.

INCORPORATION BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus supplement certain information we file with it, which means that we can disclose important information by referring you to those documents. The information incorporated by reference is considered to be a part of this prospectus supplement, and information that we file later with the SEC will automatically update and supersede information contained in this prospectus supplement. We incorporate by reference the documents listed below and any future information filed (rather than furnished) with the SEC under Sections 13(a), 13(c), 14, or 15(d) of the Exchange Act between the date of this prospectus supplement and the termination of this offering, provided, however, that we are not incorporating any information furnished under Item 2.02 or Item 7.01 of any current report on Form 8-K:

- our Annual Report on [Form 10-K](#) for the fiscal year ended December 31, 2021, filed with the SEC on March 14, 2022;
- our Quarterly Report on [Form 10-Q](#) for the quarter ended March 31, 2022, filed with the SEC on May 10, 2022;
- our Current Reports on Form 8-K filed with the SEC on [January 6, 2022](#), [January 20, 2022](#), [January 26, 2022](#), [April 26, 2022](#), [June 3, 2022](#), [July 19, 2022](#), and [July 25, 2022](#) (each to the extent filed and not furnished);
- the information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2021 from our [definitive proxy statement](#) relating to our 2022 annual meeting of stockholders, which was filed with the SEC on April 14, 2022; and
- the description of our common stock contained in our Registration Statement on [Form 8-A](#) as filed with the SEC on May 25, 2021 pursuant to Section 12(b) of the Exchange Act.

We also incorporate by reference into this prospectus supplement additional documents that we may file with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the completion or termination of the offering, including all such documents we may file with the SEC after the date of the initial registration statement and prior to the effectiveness of the registration statement, but excluding any information deemed furnished and not filed with the SEC. Any statements contained in a previously filed document incorporated by reference into this prospectus supplement is deemed to be modified or superseded for purposes of this prospectus supplement to the extent that a statement contained in this prospectus supplement, or in a subsequently filed document also incorporated by reference herein, modifies or supersedes that statement.

This prospectus supplement may contain information that updates, modifies or is contrary to information in one or more of the documents incorporated by reference in this prospectus supplement. You should rely only on the information incorporated by reference or provided in this prospectus supplement. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus supplement is accurate as of any date other than the date of this prospectus supplement or the date of the documents incorporated by reference in this prospectus supplement.

We will provide to each person, including any beneficial owner, to whom this prospectus supplement is delivered, upon written or oral request, at no cost to the requester, a copy of any and all of the information that is incorporated by reference in this prospectus supplement.

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You should direct any requests for documents to:

Singular Genomics Systems, Inc.
Attn: Investor Relations
3010 Science Park Road
San Diego, California 92121
(858) 333-7830

Our reports and documents incorporated by reference herein may also be found in the “Investors” section of our website at www.singulargenomics.com. Except for the specific incorporated documents listed above, the information on, or that can be accessed through, our website shall not be deemed to be incorporated by reference in this prospectus supplement or the registration statement of which it forms a part.

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**S I N G U L A R
G E N O M I C S**

Common Stock

PROSPECTUS SUPPLEMENT

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July 27, 2022
