Filed Pursuant to Rule 424(b)(3)
Registration No. 333-264626

PROSPECTUS

Sema4 Holdings Corp.
160,864,198 Shares of Class A Common Stock

This prospectus relates to the offer and sale from time to time by the selling stockholders named in this prospectus (the "Selling Stockholders") of up to 160,864,198 shares of our Class A common stock, par value $0.0001 per share ("Class A common stock"), consisting of (i) up to 80,000,000 shares of our Class A common stock (the "Stock Consideration Shares") issued to OPKO Health, Inc. ("OPKO") as a portion of the consideration for the Acquisition (as defined below), (ii) up to 30,864,198 shares of our Class A common stock (the "Milestone Shares") that may be issuable to OPKO in connection with the achievement of certain revenue-based milestones for each of the fiscal years ending December 31, 2022 and December 31, 2023 and (iii) up to 50,000,000 shares of our Class A common stock (the "PIPE Shares") issued in a private placement pursuant to subscription agreements each entered into on January 14, 2022 (the "PIPE Investment").

On April 29, 2022, we consummated the transactions contemplated by that certain Agreement and Plan of Merger, dated as of January 14, 2022 (as amended, the "Merger Agreement"), by and among us and our wholly-owned subsidiaries, Orion Merger Sub I, Inc. ("Merger Sub I") and Orion Merger Sub II, LLC ("Merger Sub II" and, together with Merger Sub I, "Merger Subs"), and GeneDx, Inc., a New Jersey corporation and wholly-owned subsidiary of OPKO ("GeneDx"), GeneDx Holding 2, Inc., which held 100% of GeneDx at the Effective Time (as defined below) ("Holdco2"), and OPKO. Pursuant to the terms of the Merger Agreement, we acquired GeneDx through the merger of Merger Sub I with and into Holdco2 (the "First Merger"), with Holdco2 as the surviving corporation in the First Merger. Immediately after the consummation of the First Merger, as part of the same overall transaction, Holdco2, as the surviving corporation in the First Merger, merged with and into Merger Sub II (the "Second Merger" and, together with the First Merger, the "Mergers"), with Merger Sub II as the surviving company. After giving effect to the Mergers and the other transactions contemplated by the Merger Agreement, GeneDx was converted into a Delaware limited liability company and became our wholly-owned indirect subsidiary. At the closing of the Acquisition, we paid OPKO $150 million of Cash Consideration (as defined herein) and issued to OPKO the Stock Consideration Shares. Concurrently with the closing, we also consummated the PIPE Investment, issuing the PIPE Shares for aggregate gross proceeds of $200 million. We have filed the registration statement to which this prospectus relates to satisfy certain registration rights obligations we have to the Selling Stockholders in respect of the Stock Consideration Shares, the Milestone Shares and the PIPE Shares.

The Selling Stockholders may offer, sell or distribute all or a portion of the securities hereby registered publicly or through private transactions at prevailing market prices or at negotiated prices. We will not receive any of the proceeds from such sales of the shares of our Class A common stock. We will bear all costs, expenses and fees in connection with the registration of these securities, including with regard to compliance with state securities or "blue sky" laws. The Selling Stockholders will bear all commissions and discounts, if any, attributable to their sale of shares of our Class A common stock. See "*Plan of Distribution*" beginning on page **159** of this prospectus.

Our Class A common stock and public warrants are listed on the Nasdaq Global Select Market (the "Nasdaq") under the symbol "SMFR" and "SMFRW," respectively. On May 10, 2022, the last reported sales price of our Class A common stock was $1.78 per share and the last reported sales price of our public warrants was $0.29 per warrant.

We are an “emerging growth company” as defined in Section 2(a) of the Securities Act of 1933, as amended, and, as such, have elected to comply with certain reduced disclosure and regulatory requirements.

Investing in our securities involves risks. See the section entitled “Risk Factors” beginning on page 8 of this prospectus to read about factors you should consider before buying our securities.

The registration statement to which this prospectus relates registers the resale of a substantial number of shares of our Class A common stock by the Selling Stockholders. Sales in the public market of a large number of shares, or the perception in the market that the holders of a large number of shares intend to sell shares, could reduce the market price of our Class A common stock.

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 May 11, 2022

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-1 that we filed with the Securities and Exchange Commission (the "SEC") using the "shelf" registration process. Under this shelf registration process, the Selling Stockholders may, from time to time, sell or otherwise distribute the securities offered by them as described in the section titled "*Plan of Distribution*" in this prospectus. We will not receive any proceeds from the sale by such Selling Stockholders of the securities offered by them described in this prospectus.

Neither we nor the Selling Stockholders have authorized anyone to provide you with any information or to make any representations other than those contained in this prospectus or any applicable prospectus supplement or any free writing prospectuses prepared by or on behalf of us or to which we have referred you. Neither we nor the Selling Stockholders take responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. Neither we nor the Selling Stockholders will make an offer to sell these securities in any jurisdiction where the offer or sale is not permitted.

We may also provide a prospectus supplement or post-effective amendment to the registration statement to add information to, or update or change information contained in, this prospectus. You should read both this prospectus and any applicable prospectus supplement or post-effective amendment to the registration statement together with the additional information to which we refer you in the section of this prospectus entitled "*Where You Can Find More Information*."

Unless the context otherwise requires, references in this prospectus to the "Company," "Sema4" and "we," "us" and "our" refer to (i) Mount Sinai Genomics, Inc. d/b/a as Sema4 ("Legacy Sema4") prior to the consummation of our business combination with CM Life Sciences, Inc. ("CMLS") on July 22, 2021 (the "Business Combination") and (ii) Sema4 Holdings Corp. ("Sema4 Holdings") and its consolidated subsidiaries following the consummation of the Business Combination.

SELECTED DEFINITIONS

Unless otherwise stated in this prospectus or the context otherwise requires, references to:

"*Acquisition*" means the transactions contemplated by the Merger Agreement, including the Mergers.

"*Board*" or "*Board of Directors*" means the board of directors of the Company.

"*Business Combination*" means the transactions contemplated by the Prior Merger Agreement.

"*Bylaws*" means the Restated Bylaws of the Company.

"*Cash Consideration*" means the $150 million in cash paid by the Company to OPKO at the Closing pursuant to the Merger Agreement, subject to certain adjustments as provided in the Merger Agreement.

"*Certificate of Incorporation*" or "*Charter*" means our Third Amended and Restated Certificate of Incorporation, dated as of July 22, 2021, as amended by the Amendment to the Amended and Restated Certificate of Incorporation, dated as of April 29, 2022.

"*Class A common stock*" means the shares of Class A common stock, par value $0.0001 per share, of the Company.

"*Closing*" means the closing of the Acquisition.

"*CMLS*" means CM Life Sciences, Inc. prior to the closing of the Business Combination.

"*Code*" means the Internal Revenue Code of 1986, as amended.

"*DGCL*" means the General Corporation Law of the State of Delaware.

"*Earn-Out Shares*" means the shares of Class A common stock issuable pursuant to the Prior Merger Agreement upon the achievement of certain vesting conditions.

"*Effective Time*" means the time the First Merger became effective.

"*ESPP*" means the Sema4 Holdings Corp. 2021 Employee Stock Purchase Plan.

"*Exchange Act*" means the Securities Exchange Act of 1934, as amended.

"*First Merger*" means the merger of Merger Sub I with and into HoldCo, with HoldCo as the surviving corporation in the First Merger.

"*GAAP*" means United States generally accepted accounting principles.

"*GeneDx*" means (i) GeneDx, Inc., a New Jersey corporation prior to the Closing of the Acquisition and (ii) GeneDx, LLC, a Delaware limited liability company, following the Closing of the Acquisition.

"*HoldCo*" means GeneDx Holding 2, Inc., which held 100% of GeneDx immediately following the Effective Time.

"*Investment Company Act*" means the Investment Company Act of 1940, as amended.

"*IPO*" or "*CMLS IPO*" means the Company's initial public offering, consummated on September 4, 2020, of 44,275,000 units (including 5,775,000 units that were subsequently issued to the underwriters in connection with the partial exercise of their over-allotment option) at $10.00 per unit.

"*2021 EIP*" means the Sema4 Holdings Corp. 2021 Equity Incentive Plan.

"*JOBS Act*" means the Jumpstart Our Business Startups Act of 2012.

"*Former Sponsor*" means CMLS Holdings LLC, a Delaware limited liability company.

"*Legacy Sema4*" means Mount Sinai Genomics, Inc., a Delaware corporation, doing business as Sema4 prior to the consummation of the Business Combination.

"*Lock-Up Holder*" means certain stockholders of OPKO who entered into the Shareholder Agreements with the Company.

"*Merger Agreement*" means that certain Agreement and Plan of Merger and Reorganization, dated as of January 14, 2022, by and among the Company, Merger Sub I, Merger Sub II, GeneDx, OPKO, and Holdco, as amended by the Amendment to Agreement and Plan of Merger and Reorganization, dated as of April 29, 2022.

"*Merger Consideration*" means the Cash Consideration and the Stock Consideration Shares.

"*Merger Sub I*" means Orion Merger Sub I, Inc.

"*Merger Sub II*" means Orion Merger Sub II, LLC.

"*Merger Subs*" means Merger Sub I and Merger Sub II.

"*Mergers*" means the First Merger and the Second Merger.

"*Milestone Payments*" means the up to $150 million payable by the Company to OPKO pursuant to the Merger Agreement following the Closing, if certain revenue-based milestones are achieved for each of the fiscal years ending December 31, 2022 and December 31, 2023. Each Milestone Payment, if and to the extent earned under the terms of the Merger Agreement, will be satisfied through the payment and/or issuance of a combination of cash and shares of Class A common stock (valued at $4.86 per share based on the average of the daily volume average weighted price of the Company's Class A common stock over the period of 30 trading days ended January 12, 2022), with such mix to be determined in the Company's sole discretion.

"*Milestone Shares*" means the up to 30,864,198 shares of our Class A common stock that may be issuable to OPKO in connection with the Milestone Payments.

"*Nasdaq*" means the Nasdaq Stock Market.

"*OPKO*" means OPKO Health, Inc.

"*PIPE Investment*" means the private placement pursuant to which the PIPE Investors collectively subscribed for the PIPE Shares at $4.00 per share, for an aggregate purchase price of $200 million.

"*PIPE Investors*" means certain institutional investors that invested in the PIPE Investment pursuant to, and on the terms and subject to the conditions of, the Subscription Agreements.

"*PIPE Shares*" means the 50 million shares of Class A common stock issued in the PIPE Investment.

"*Pre-Closing Restructuring*" has the meaning ascribed to it in the Merger Agreement.

"*Prior Merger Agreement*" means that certain Agreement and Plan of Merger, dated as of February 9, 2021, as amended, by and among CMLS, S-IV Sub, Inc. and Legacy Sema4.

"*private placement warrants*" means the 7,236,667 warrants originally issued to the Former Sponsor and certain of the other initial stockholders of CMLS in a private placement in connection with our IPO, each of which is exercisable for three-quarters of one share of Class A common stock, in accordance with its terms.

"*public shares*" means shares of Class A common stock included in the units issued in our IPO.

"*public stockholders*" means holders of public shares.

"*public warrants*" means the warrants included in the units issued in our IPO, each of which is exercisable for three-quarters of one share of Class A common stock, in accordance with its terms.

"*Related Agreements*" means, collectively, the Shareholder Agreements, the Subscription Agreements and the Support Agreements.

"*RSUs*" means restricted stock units granted under the 2017 EIP, 2021 EIP or pursuant to the Prior Merger Agreement.

"*SEC*" means the United States Securities and Exchange Commission.

"*Second Merger*" means the merger of HoldCo, as the surviving corporation in the First Merger, with and into Merger Sub II, with Merger Sub II as the surviving company.

"*Securities Act*" means the Securities Act of 1933, as amended.

"*Shareholder Agreements*" means, collectively, those certain shareholder agreements entered into on January 14, 2022, between the Company and OPKO and the Lock-Up Holders, pursuant to which OPKO and the Lock-Up Holders have agreed, among other things, to certain transfer restrictions in respect of the shares of Class A common stock issues and to be issued pursuant to the Merger Agreement.

"*Sarbanes-Oxley Act*" or "*SOX*" means the Sarbanes-Oxley Act of 2002.

"*Selling Stockholders*" means the selling stockholders named in this prospectus.

"*Stock Consideration Shares*" means the 80 million shares of Class A common stock issued by the Company to OPKO at the Closing pursuant to the Merger Agreement.

"*stockholders*" means holders of shares of the Company's Class A common stock.

"*Subscription Agreements*" means, collectively, those certain subscription agreements entered into on January 14, 2022, between the Company and the PIPE Investors, pursuant to which such investors agreed to purchase the PIPE Shares in the PIPE Investment on the terms and subject to the conditions of the Subscription Agreements.

"*Transfer Agent*" means Continental Stock Transfer & Trust Company.

MARKET AND INDUSTRY DATA

This prospectus contains estimates and information concerning our industry, our business, and the market for our products and services, including our general expectations of our market position, market growth forecasts, our market opportunity, and size of the markets in which we participate, that are based on industry publications, surveys, and reports that have been prepared by independent third parties. This information involves a number of assumptions and limitations, and you are cautioned not to give undue weight to these estimates. Although we have not independently verified the accuracy or completeness of the data contained in these industry publications, surveys, and reports, we believe the publications, surveys, and reports are generally reliable, although such information is inherently subject to uncertainties and imprecision. The industry in which we operate is subject to a high degree of uncertainty and risk due to a variety of factors, including those described in the section titled "*Risk Factors*." These and other factors could cause results to differ materially from those expressed in these publications and reports.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain matters discussed in this prospectus, including matters discussed under the caption "*Management's Discussion and Analysis of Financial Condition and Results of Operations*" may constitute forward-looking statements for purposes of the Securities Act of 1933, as amended (the "Securities Act"), and the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from the future results, performance or achievements expressed or implied by such forward-looking statements. The words "anticipate," "believe," "estimate," "may," "expect" and similar expressions are generally intended to identify forward-looking statements. Our actual results may differ materially from the results anticipated in these forward-looking statements due to a variety of factors, including, without limitation, those discussed in the sections entitled "*Risk Factors*," "*Management's Discussion and Analysis of Financial Condition and Results of Operations*" and elsewhere in this prospectus, as well as other factors which may be identified from time to time in our other filings with the SEC, or in the documents where such forward-looking statements appear. All written or oral forward-looking statements attributable to us are expressly qualified in their entirety by these cautionary statements. Such forward-looking statements include, but are not limited to, statements about:

- our ability to realize the benefits expected from the Acquisition and the other transactions contemplated by the Merger Agreement and the related PIPE Investment;
- our estimates of the sufficiency of our existing capital resources combined with future anticipated cash flows to finance our operating requirements;
- our expected losses;
- our expectations for incurring capital expenditures to expand our research and development and manufacturing capabilities;
- unforeseen circumstances or other disruptions to normal business operations, including supply chain interruptions and manufacturing constraints, arising from or related to COVID-19;
- our expectations for generating revenue or becoming profitable on a sustained basis;
- our expectations or ability to enter into service, collaboration and other partnership agreements;
- our expectations or ability to build our own commercial infrastructure to scale market and sell our products;
- actions or authorizations by the U.S. Food and Drug Administration (the "FDA") or other regulatory authorities;
- risks related to governmental regulation and other legal obligations, including privacy, data protection, information security, consumer protection, and anti-corruption and anti-bribery;
- our ability to obtain and maintain intellectual property protection for our product candidates;
- our ability to compete against existing and emerging technologies;
- our stock price and its volatility;
- our ability to attract and retain key personnel;
- third-party payor reimbursement and coverage decisions;
- our reliance on third-party laboratories and service providers for our test volume in connection with our diagnostic solutions and data programs;
- our expectations for future capital requirements;

- our ability to successfully implement our business strategy; and
- other factors detailed under the section entitled "*Risk Factors*."

The forward-looking statements contained in this prospectus reflect our views and assumptions only as of the date of this prospectus. Except as required by law, we assume no responsibility for updating any forward-looking statements.

We qualify all of our forward-looking statements by these cautionary statements. In addition, with respect to all of our forward-looking statements, we claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995.

PROSPECTUS SUMMARY

The following summary highlights information contained in greater details elsewhere in this prospectus. This summary is not complete and does not contain all of the information you should consider in making your investment decision. You should read the entire prospectus carefully before making an investment in our Class A common stock. You should carefully consider, among other things, our financial statements and related notes and the sections titled "*Risk Factors*" and "*Management's Discussion and Analysis of Financial Condition and Results of Operations*" included elsewhere in this prospectus.

Company Overview

We are a patient-centered, health intelligence company with a mission to use artificial intelligence ("AI") and machine learning to enable personalized medicine for all. Our integrated information platform leverages longitudinal patient data, AI-driven predictive modeling, and genomics in combination with other molecular and high-dimensional data in our efforts both to deliver better outcomes for patients and to transform the practice of medicine, including how disease is diagnosed, treated, and prevented.

We have established one of the largest, most comprehensive, and fastest growing integrated health information platforms, collecting and leveraging genomic and clinical data in partnership with patients, healthcare providers and an extensive ecosystem of life science industry contributors. We are now generating and processing over 47 petabytes of data per month, growing by more than 1 petabyte per month, and maintaining a database that includes approximately 12 million de-identified clinical records, including more than 500,000 with genomic profiles, integrated in a way that enables physicians to proactively diagnose and manage disease. This expanding database is a virtuous cycle of data: new data enables us to further develop, train, and refine predictive models and drive differentiated insights, which models and insights we deploy through our next generation diagnostic and research solutions and portals to support clinicians and researchers and engage patients, all of which interactions generate more data to continue the cycle.

Today, by providing differentiated insights through diagnostic testing solutions to physicians and patients across the United States (the "U.S.") in areas such as reproductive health ("Women's Health"), population health, and oncology ("Oncology"), we are reimbursed by payors, providers, and patients for providing these services. In collaboration with pharmaceutical and biotech ("Biopharma") companies, we receive payments for a broad range of services relating to the aggregated data on our information platform, such as consenting and recontacting patients, the development and implementation of a wide range of predictive models, including drug discovery programs, conducting real-world evidence studies, and aiding in the identification and recruitment of patients into clinical trials. Over the next several years, we expect to focus on expanding the revenue from our health system and Biopharma partners, while also working to continue to grow the volumes and revenues from our diagnostics test solutions.

While there are many companies seeking to harness the potential of "big data" to address the challenges within the healthcare ecosystem, we believe that few have the scale of our company combined with our revenue-generating diagnostics testing business and origins as a company conceived and nurtured within a world-class health system. These characteristics have enabled us to build a significant and highly differentiated technological and informational asset positioned to drive precision medicine solutions into the standard of care in an unparalleled way.

Our World Class Team and Unique Origins

Sema4 was founded by Eric Schadt, Ph.D. as part of Icahn School of Medicine at Mount Sinai's Department of Genetics and Genomic Sciences and the Icahn Institute for Genomics and Multiscale Biology. Dr. Schadt is a world-renowned expert on constructing predictive models of disease that link molecular data to physiology to enable clinical medicine. He has published more than 450 peer-reviewed papers in leading scientific journals, with a public citation or h-index of 137, and contributed to discoveries relating to the genetic basis of common human diseases such as cancer, diabetes, obesity, and Alzheimer's disease. As of December 31, 2021, we have approximately 1200 employees, including over 160 Ph.D.-level data scientists whose collective work has been recognized in areas such as data science, network modeling, multiscale biotechnology and genomics.

Sema4 was established out of the Mount Sinai Health System (which we refer to together with its related entities as "Mount Sinai") and commenced operations in June 2017 as a commercial entity that could effectively engage diverse patient populations and health care institutions at scale, founded on the idea that more information, deeper AI-driven learning, and increased engagement of patients and their providers will improve diagnosis, treatment, and prevention of disease. We have since established and deployed our comprehensive and integrated genomics and information platforms, and intend to continue to expand our scale and reach through organic and inorganic growth.

Our Purpose-Built, Flexible Platforms Address Immediate and Untapped Market Opportunities

With the rapid decline in next generation sequencing costs and the increased accessibility of large scale, commoditized computer hardware and storage information products through the cloud, we expect that our core information platform, Centrellis®, supported and fueled by our genomic analysis platform, Traversa™, will be well-positioned to drive improved clinical outcomes competitively in the healthcare market.

Our information platform was built to be highly adaptable to different data types and different diseases and health conditions, with the aim to deliver precision medicine and improved health outcomes across a patient's entire life cycle. Accordingly, we expect our platforms to capitalize on a wide range of growth opportunities, and we intend to apply capital over time to make targeted acquisitions to accelerate our ability to reach a wider range of patients, integrate more deeply into clinical workflows, and address the significant, unaddressed white space for health intelligence in the healthcare ecosystem. These include a broad range of therapeutic segments, beyond our existing focus of our diagnostics solutions for Women's Health, and Oncology, where we believe there is an immediate need for precision medicine solutions such as in autoimmune disorders, where medical care represented over $100 billion of spend in 2011, rare diseases, which is estimated to cost the U.S. healthcare system over $400 billion annually, and cardiovascular disease, where direct medical spend represents approximately $200 billion annually.

By combining our data-driven approach and our deep understanding of health system workflows, we have developed a holistic health information platform, Centrellis, to transform the disease diagnosis and treatment paradigm for the entire healthcare ecosystem: patients, physicians, health systems, payers, and Biopharma companies. The Centrellis platform is comprised of a data management backend that supports a wide array of databases, data warehouses, and knowledge bases, a data analytics layer to mine the data and construct predictive models that provide differentiated insights, and a series of application programmable interfaces to enable tool and software applications to access the data and models. Centrellis serves as the underlying foundation of our precision medicine solution and comprises a sophisticated data management and analytics engine. In the data management layer, our platform processes and stores data in a highly structured and accessible way, which is then analyzed by an advanced insights engine in the analytics layer that deploys state-of-the-art AI, probabilistic causal reasoning and machine learning approaches, and complementary analytics capabilities to deliver increasingly accurate insights to patients, providers, and researchers across a broad range of applications. Centrellis is designed to transform treatment decisions across multiple therapeutic areas by engaging large-scale, high-dimensional data and querying the predictive models of disease and wellness using patient-specific data to derive highly personalized, clinically actionable insights. Centrellis supports various applications, such as delivery of personalized and actionable treatment insights into clinical reports, clinical trial matching, real-world evidence trials and clinical decision support, through an advanced programmable interface ("API") layer.

We have also developed a comprehensive genomic platform, Traversa™, to serve as the backbone of our screening and diagnostic products and with the capacity to deliver molecular data that can be re-accessed, analyzed and delivered throughout a patient's lifetime. Traversa is designed to simultaneously assay at clinical-grade coverage all known medically relevant regions of the genome, as well as survey the entirety of the human genome, to surface signals that might be medically relevant to a patient in the future. Traversa is integrated with the Centrellis information platform and is designed to adapt at the rate of learning and to match the significant pace of information and knowledge growth, especially in the genomics arena, to allow us to provide actionable, accurate, and cutting-edge insights from complex and comprehensive data assets. We also expect this platform to enable us to scale our operations and to improve our margins in generating secondary insights for patients and providers.

We Are Building Richer Longitudinal Data Through Deeper Patient and Provider Engagement

We engage with patients, physicians, and health systems as partners and based on principles of transparency, choice, and consent. Driven by our direct engagement with patients and strategic relationships with multiple health systems, the database we have built contains extensive electronic medical record ("EMR") data, totaling approximately 12 million de-identified clinical records, many with genomic profiles, and has been designed to enable Centrellis to draw from our extensive data assets in a way that enables physicians to proactively diagnose and manage disease. We expect our current and targeted strategic relationships will provide us with access to additional active patient cohorts and datasets to fuel this growth and perpetuate our iterative, data-driven business model, including by rapidly scaling our diagnostic test solutions franchise with physicians and patients through direct engagement with multiple health system partners.

In addition to providing a majority of our current revenue and generating hundreds of thousands of genomic profiles, our established diagnostic test solutions also allow us to engage patients directly as partners, both as part of their clinical care and also acting on their behalf, with appropriate informed consent, to acquire, organize and manage any health data generated on them through the course of their care, all of which contributes to the further development of our genomics and information platforms. Further, we have demonstrated patients' willingness to partner with us. For example, over 80% of diagnostics solutions patients and users who engaged with our patient portal have given us their informed consent to retrieve, organize, and manage their health records and data, and to facilitate their access to and sharing of that data, as well as additional data that patients share and create through their use of our expanding suite of digital experience products.

Our Established Diagnostic Solutions Are Scaling Rapidly

We currently operate a mature diagnostic business that generates revenue and engages with patients through our varied and sophisticated diagnostics and screening offerings. Our population health offerings are designed to run through our Traversa platform and give us the ability to inform on thousands of diseases and conditions, from rare disorders, to drug safety, to risk profiles across a broad range of common human diseases of significant public health concern. We have developed an array of diagnostic and screening solutions to inform across a patient's life course, ranging from reproductive health and newborn screening to drug safety and oncology. Our Women's Health solutions sequence and analyze an industry-leading number of genes, and use Centrellis' interpretive information tools to translate raw sequencing and clinical data efficiently and accurately into digestible clinical reports that guide decision making by patients and physicians. Our Oncology diagnostic solutions feature both somatic tumor profiling and hereditary cancer screenings, along with a foundational whole exome and whole transcriptome sequencing approach.

Centrellis enables the complex interpretations of these data to identify key driver genes, activated and suppressed pathways, molecular subtypes, therapeutic interventions and matching to clinical trials. We believe our array of diverse diagnostic solutions, built on our differentiated grounding in scientific excellence and coupled with an end-to-end full-service model, have led to our rapidly growing customer bases in Women's Health and Oncology and increasing traction with health systems, as well as deep, trusting engagement with patients.

We Are Embedding Our Solutions Through Innovative, Deep Relationships

Our origins in and subsequent work with Mount Sinai have provided us with an extensive understanding of health systems, patient, and physician workflows as well as the complex interconnectivities that define patient-physician relationships. We have used this knowledge to develop our integrated health system collaboration model, where we have the capabilities necessary to integrate across health system workflows as a holistic health intelligence partner in order to deploy our comprehensive genomics and information platforms, our data curation and harmonization capabilities, and our patient and provider engagement software applications. Our solutions support our health system partners across their operations, helping them integrate a new standard of care and creating a deep relationship with us that helps both partners realize the potential of the relationship. In addition to creating diagnostic revenue and a clinical relationship with our health system partners and their patients, this engagement provides us with access to insights informed by analyzed and processed EMRs from the health system, as well as the expansive molecular information we generate from our genomics platform as the health system's precision medicine

partner. Learning from our long-standing relationship with Mount Sinai, we have refined a health system engagement model that is both operational and economic and designed to maximize both our and our health system partner's value from the relationship. We are currently activating and expanding our relationships with several leading health systems that will expand our access to data and that we expect will position our platforms for rapid growth and broad commercial opportunities, and have recently signed contracts with three new health systems in support of this strategy.

Centered on Centrellis and Traversa, we have also established and continue to seek strategic relationships with Biopharma companies to enable innovation across the entire drug lifecycle, from next generation drug discovery and development, to post-market efficacy surveillance, to informing on bioavailability, toxicity, tolerability, and other features critical to drug development. We have demonstrated the ability to integrate across all aspects of the next generation therapeutic and drug development process, including: biomarker identification as part of early stage drug discovery; identification, validation and prioritization of drug targets; clinical trial patient recruitment; real-world evidence studies; and identifying new markets and indications for existing assets. We believe our solutions allow our Biopharma partners to harness the potential of big data to enable the development of next generation precision medicine therapeutics.

Recent Developments

On April 29, 2022, we consummated the transactions contemplated by the Merger Agreement, whereby we acquired GeneDx through the Mergers and paid OPKO $150 million of Cash Consideration and issued to OPKO 80 million of Stock Consideration Shares. Concurrently with the Closing, we also consummated the PIPE Investment, issuing 50 million PIPE Shares for aggregate gross proceeds of $200 million. We have filed the registration statement to which this prospectus relates to satisfy certain registration rights obligations we have to the Selling Stockholders in respect of the Stock Consideration Shares, the Milestone Shares and the PIPE Shares.

Corporate Information

We were incorporated on July 10, 2020 as a special purpose acquisition company and a Delaware corporation under the name CM Life Sciences, Inc. ("CMLS"). On September 4, 2020, CMLS completed its initial public offering. On July 22, 2021, CMLS consummated the Business Combination with Legacy Sema4 pursuant to the Prior Merger Agreement. In connection with the Business Combination, CMLS changed its name to Sema4 Holdings Corp. ("Sema4 Holdings").

Our address is 333 Ludlow Street, North Tower, 8th Floor, Stamford, Connecticut 06902. Our telephone number is 1(800) 298-6470. Our website address is https://sema4.com. Information contained on our website or connected thereto does not constitute part of, and is not incorporated by reference into, this prospectus or the registration statement of which it forms a part.

Summary of Risk Factors

In evaluating an investment in our securities, investors should carefully read the risks described below, this prospectus and especially consider the factors discussed in the section entitled "*Risk Factors*." If any of the following events occur, our business, financial condition and operating results may be materially adversely affected. In that event, the trading price of our securities could decline, and you could lose all or part of your investment. Such risks include, but are not limited to:

- Our business is subject to a number of risks and uncertainties, including those risks discussed at length below. These risks include, among others, the following:
    - The ongoing COVID-19 pandemic has affected and may further materially and adversely affect our business and financial results.
    - We face intense competition. If we do not continue to innovate and provide products and services that are useful to users, we may not remain competitive, which could harm our business and operating results.

- If third-party payors, including managed care organizations, private health insurers and government health plans, do not provide adequate reimbursement for our tests, or seek to amend or renegotiate their fee reimbursement schedules, or if we are unable to comply with their requirements for reimbursement, our commercial success could be negatively affected.
- We have limited experience with the development and commercialization of our databases and our health information and genomic platforms.
- If we fail to comply with federal and state laboratory licensing requirements or standards, we could lose the ability to perform our tests or experience disruptions to our business.
- We rely on highly skilled personnel in a broad array of disciplines and, if we are unable to hire, retain or motivate these individuals, or maintain our corporate culture, we may not be able to maintain the quality of our services or grow effectively.
- We need to scale our infrastructure in advance of demand for our products and services, and our failure to generate sufficient demand for our products and services would have a negative impact on our business and our ability to attain profitability.
- We rely on a limited number of suppliers or, in some cases, single suppliers, for some of our laboratory instruments and materials and may not be able to find replacements or immediately transition to alternative suppliers or service providers.
- We rely on a limited number of product and service providers for data infrastructure and analytics capabilities, and any disruption of, or interference with, our use of data and workflow services could adversely affect our business, financial condition, and results of operations, and we may not be able to find replacements or immediately transition to alternative products or service providers.
- Our projections are subject to significant risks, assumptions, estimates and uncertainties, including assumptions regarding adoption of our products and services. As a result, our projected revenues, market share, expenses and profitability may differ materially from our expectations in any given quarter or fiscal year.
- Uncertainty in the development and commercialization of our enhanced or new tests or services could materially adversely affect our business, financial condition and results of operations.
- We currently use, and in the future expect to increase our use of, information and rights from customers, strategic partners, and collaborators for several aspects of our operations, and if we cannot maintain current and enter new relationships with these parties with adequate access and authorization to such information, our business will suffer.
- Our operating results could be subject to significant fluctuation, which could increase the volatility of our stock and warrant prices and cause losses to our stockholders.
- We may need to raise additional capital to fund our existing operations, develop additional products and services, commercialize new products and services or expand our operations and may have difficulties raising capital depending on financial market conditions.
- We expect to make significant investments in our continued research and development of new products and services, which may not be successful.
- We have identified material weaknesses, some of which have a pervasive effect across the organization, and may identify additional material weaknesses or significant deficiencies, in our internal controls over financial reporting. Our failure to remedy these matters could result in a material misstatement of our financial statements and we will incur increased costs and demands on management as a result of compliance with internal control requirements, which could harm our operating results.

- We rely on third-party laboratories to perform certain elements of our service offerings.
- Future changes in FDA enforcement discretion for LDTs could subject our operations to much more significant regulatory requirements.
- For each product and service we are developing that may require FDA premarket review prior to marketing, the FDA may not grant clearance, authorization or premarket approval and failure to obtain necessary approvals for our future products and services would adversely affect our ability to grow our business.
- Compliance with the HIPAA security, privacy and breach notification regulations may increase our costs.
- We face uncertainty related to healthcare reform, pricing, coverage and reimbursement, which could reduce our revenue.
- Our inability to effectively protect our proprietary products, processes, and technologies, including the confidentiality of our trade secrets, could harm our competitive position.
- Security breaches, privacy issues, loss of data and other incidents could compromise sensitive, protected, or personal information related to our business, could prevent it from accessing critical information, and could expose it to regulatory liability, which could adversely affect our business.
- We will incur increased costs and demands on management as a result of compliance with laws and regulations applicable to public companies, which could harm our operating results.

Emerging Growth Company

We are an "emerging growth company," as defined in Section 2(a) of the Securities Act, as modified by the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act"), and we may take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies, including, but not limited to, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002 (the "Sarbanes-Oxley Act"), reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved.

Further, Section 102(b)(1) of the JOBS Act exempts emerging growth companies from being required to comply with new or revised financial accounting standards until private companies (that is, those that have not had a registration statement under the Securities Act declared effective or do not have a class of securities registered under the Exchange Act) are required to comply with the new or revised financial accounting standards. The JOBS Act provides that a company can elect to opt out of the extended transition period and comply with the requirements that apply to non-emerging growth companies but any such election to opt out is irrevocable. We have elected not to opt out of such extended transition period, which means that when a standard is issued or revised and it has different application dates for public or private companies, we, as an emerging growth company, can adopt the new or revised standard at the time private companies adopt the new or revised standard. This may make comparison of our financial statements with certain other public companies difficult or impossible because of the potential differences in accounting standards used.

We will remain an emerging growth company until the earliest of (i) the last day of the fiscal year: (a) following September 1, 2025, the fifth anniversary of our IPO; (b) in which we have total annual gross revenue of at least $1.07 billion; or (c) in which we are deemed to be a large accelerated filer, which means the market value of our Class A common stock that is held by non-affiliates exceeds $700.0 million as of the prior June 30th, and (ii) the date on which we have issued more than $1.0 billion in non-convertible debt during the prior three-year period. References herein to "emerging growth company" have the meaning associated with it in the JOBS Act.

The Offering

Issuer	Sema4 Holdings Corp.
Resale of Class A common stock	
Shares of Class A common stock offered by the Selling Stockholders	Up to 160,864,198 shares of Class A common stock, consisting of (a) up to 80,000,000 Stock Consideration Shares; (b) up to 30,864,198 Milestone Shares; and (c) up to 50,000,000 PIPE Shares.
Terms of the offering	The Selling Stockholders will determine when and how they will dispose of the shares of Class A common stock registered under this prospectus for resale.
Use of proceeds	We will not receive any proceeds from the sale of shares of Class A common stock by the Selling Stockholders.
Lock-up restrictions	Certain of our stockholders may still be subject to certain restrictions on transfer until the termination of applicable lock-up periods. See "*Certain Relationships and Related Person Transactions*."
Nasdaq symbols	Our Class A common stock and public warrants are listed on the Nasdaq under the symbols SMFR and SMFRW, respectively.
Risk factors	See "*Risk Factors*" and other information included in this prospectus for a discussion of factors you should consider before investing in our securities.
Shares of Class A common stock outstanding as of April 29, 2022	377,249,186

RISK FACTORS

You should carefully review and consider the following risk factors and the other information contained in this prospectus, including our financial statements and notes to the financial statements and the section titled " Management's Discussion and Analysis of Financial Condition and Results of Operations" in this prospectus, before deciding whether to invest in our Class A common stock. We cannot assure you that any of the events discussed below will not occur. These events could have a material and adverse impact on our business, financial condition, results of operations and prospects. Unless otherwise indicated, references to our business being harmed in these risk factors will include harm to our business, reputation, financial condition, results of operations, net revenue and future prospects. In such event, the trading price of our Class A common stock could decline, and you could lose all or part of your investment. We may face additional risks and uncertainties that are not presently known to us, or that we currently deem immaterial, which may also impair our business or financial condition. The following discussion should be read in conjunction with the financial statements and notes to the financial statements included herein.

Risks Related to Our Business, Industry and Operations

The ongoing COVID-19 pandemic has affected and may further materially and adversely affect our business and financial results.

The ongoing COVID-19 pandemic, together with related precautionary measures in response to the initial outbreak and resurgences, materially disrupted our business during certain periods in 2020 and 2021 and may continue to disrupt our business for an unknown period of time. Since the initial outbreak, the territories in which we market, sell, distribute and perform our tests and performs our health information and data science services continue to address the COVID-19 pandemic in varying ways, including stay-at-home orders, temporarily closing businesses, restricting gatherings, restricting travel, and mandating social distancing, face coverings and proof of vaccination. Despite recent progress in the administration of vaccines, the future impact and the level and nature of the disruption caused by the COVID-19 pandemic continues to be unpredictable, may be cyclical and long-lasting and may vary from location to location, and the emergence of new variant strains of COVID-19, including Delta and Omicron, in regions that have reopened have necessitated, and may in the future necessitate, renewed government restrictions. As a result, we experienced a significant impact to our 2020 and 2021 operating results, including our order volumes, revenues, margins, and cash utilization, among other measures and may experience further impacts in future periods depending on the evolution of the COVID-19 pandemic.

Throughout 2020 and 2021, both we and our partners undertook a number of precautionary measures in response to the virus, including requiring employees to work remotely, restricting travel and limiting interactions in person, and we expect to adjust our precautionary measures at our various locations based on local recovery levels, vaccination rates and applicable governmental regulations. For example, a portion of our sales force has recommenced field-based interactions, although access to healthcare providers remains impaired and the industry continues to resume normal activities. Our business could be negatively affected in the future if it takes excessive, ineffective or inadequate precautions

The ongoing COVID-19 pandemic has materially impacted our business in 2020 and 2021 and may continue to impact our business for an unknown period of time. Such impacts have included and may include the following:

- Healthcare providers or patients have canceled or delayed scheduling, and for an extended period of time may continue to cancel or delay scheduling, standard wellness visits and other non-emergency appointments and procedures (including oncology and pregnancy-related screenings), contributing to a decline in orders for our products or services;
- Restrictions on travel, commerce and shipping may prevent patients and pathologists from shipping samples to our clinical laboratories;
- Illnesses, quarantines, financial hardships, restrictions on travel, commerce and shipping, or other consequences of the pandemic, may disrupt our supply chain or other business relationships, and we or other parties may assert rights under force majeure clauses to excuse performance;

- We have experienced, and for an extended period of time may continue to experience, reduced volumes at our clinical laboratories and we may need to suspend operations at some or all of our clinical laboratories;
- We have taken, and may take additional, cost cutting measures, which may hinder our efforts to commercialize our products or delay the development of future products and services. Further, we might not realize all of the cost savings we expect to achieve as a result of those efforts;
- We and our partners have postponed or cancelled clinical studies, which may delay or prevent our launch of future products and services;
- Some or all of our workforce, much of which continues to work remotely in an effort to reduce the spread of COVID-19, may be infected by the virus or otherwise distracted;
- A combination of factors, including infection from the virus, supply shortfalls, and inability to obtain or maintain equipment, could adversely affect our lab capacity and our ability to meet the demand for our testing services; and
- We may inaccurately estimate the duration or severity of the COVID-19 pandemic, which could cause us to misalign our staffing, spending, activities and precautionary measures with current or future market conditions.

Despite our efforts, the ultimate impact of the COVID-19 pandemic, or the impact of the emergence of new strains of the virus and any future resurgences of COVID-19 or variant strains, depends on factors beyond our knowledge or control, including availability and distribution of effective medical treatments and vaccines, the duration and severity of the pandemic, third-party actions taken to contain its spread and mitigate its public health effects and short- and long-term changes in the behaviors of medical professionals and patients resulting from the pandemic.

Additionally, the economic consequences of the COVID-19 pandemic have, and may continue to, adversely impacted financial markets, resulting in high share price volatility, reduced market liquidity, and substantial declines in the market prices of the securities of many publicly traded companies. Volatile or declining markets for equities could adversely affect our ability to raise capital in the future when needed through the sale of shares of Class A common stock or other equity or equity-linked securities. If these market conditions persist when and if we need to raise capital, and if we are able to sell shares of our Class A common stock under then prevailing market conditions, we might have to accept lower prices for our shares and issue a larger number of shares than might have been the case under better market conditions, resulting in significant dilution of the interests of our stockholders.

Due to the high degree of uncertainty regarding the implementation and impact of the CARES Act and other legislation related to COVID-19, there can be no assurance that we will be able to comply with the applicable terms and conditions of the CARES Act and retain such assistance.

On March 27, 2020, the CARES Act was signed into law, aimed at providing emergency assistance and health care for individuals, families, and businesses affected by the COVID-19 pandemic and generally supporting the U.S. economy. The CARES Act, among other things, includes provisions relating to refundable payroll tax credits, deferment of employer social security payments, net operating loss carryback periods, alternative minimum tax credit refunds, and modifications to the net interest deduction limitations. The CARES Act and similar legislation intended to provide assistance related to the COVID-19 pandemic also authorized $175.0 billion in funding to be distributed by the U.S. Department of Health and Human Services (“HHS”) to eligible health care providers. This funding, known as the Provider Relief Fund, is designated to fund eligible healthcare providers’ healthcare-related expenses or lost revenues attributable to COVID-19. On December 27, 2020, the Consolidated Appropriations Act, 2021 was signed into law, which adds $3.0 billion to the Provider Relief Fund. Payments from the Provider Relief Fund are subject to certain eligibility criteria, as well as reporting and auditing requirements, but do not need to be repaid to the U.S. government if recipients comply with the applicable terms and conditions.

In 2020, we received $5.4 million as part of the stimulus, comprised of $2.6 million received under the Provider Relief Fund (“PRF”) distribution and $2.8 million received under the Employee Retention Credit (“ERC”)

distribution. In 2021, we received an additional $5.6 million under the PRF distribution. PRF distributions to healthcare providers are not loans and will not be required to be repaid; however, as a condition to receiving these payments, providers must agree to certain terms and conditions and submit sufficient documentation demonstrating that the funds are being used for healthcare-related expenses or lost revenue attributable to the COVID-19 pandemic. ERC distributions are refundable tax credits for 50% of qualified wages paid to employees during the pandemic. A company is eligible for the ERC if it has not received a Paycheck Protection Program loan under the Cares Act and (1) its operations have been fully or partially suspended because of COVID-19 or (2) its gross receipts in a calendar quarter in 2020 declined by more than 50% from the same period in 2019. At the time of applying for the ERC, we concluded that the eligibility requirements were met. However, subsequent to the filing of the application, our revenue was revised due to a change in estimate as a result of finalizing our accounting records, which impacted the applicable periods and calculations for determining eligibility, and may no longer meet the eligibility requirements. As such, we have deferred the recognition of the ERC distribution and recorded the proceeds in other liabilities on the balance sheets as of December 31, 2021 and December 31, 2020.

Due to the high degree of uncertainty regarding the implementation of the CARES Act, the Consolidated Appropriations Act, 2021 and other stimulus legislation, and due to our revenue revisions, there can be no assurance that the terms and conditions of the PRF, ERC or other relief programs will not change or be interpreted in ways that affect our ability to comply with such terms and conditions in the future, which could affect our ability to retain such assistance. We will continue to monitor our compliance with the terms and conditions of the PRF, including demonstrating that the distributions received have been used for healthcare-related expenses or lost revenue attributable to COVID-19, and the ERC. If we are unable to comply with current or future terms and conditions, our ability to retain some or all of the distributions received may be impacted, and we may be subject to actions including payment recoupment, audits and inquiries by governmental authorities, and criminal, civil or administrative penalties.

Other companies or institutions may develop and market novel or improved technologies, which may make our technologies less competitive or obsolete.

We operate in a rapidly evolving and highly competitive industry. There are a number of private and public companies that offer products or services or have announced that they are developing products or services that compete, or may one day compete, with our products or services. Some of our current and potential competitors possess greater brand recognition, financial and other resources and development capabilities than we do. As the fields of genomic analysis and health information become more widely known to the public, we anticipate that competition will further increase. We expect to compete with a broad range of organizations in the U.S. and other countries that are engaged in the development, production and commercialization of genetic screening products, including women’s health and oncology screening products, health information services, and analytics, and data science services, and other diagnostic products. These competitors include:

- companies that offer clinical, research and data clinical services, molecular genetic testing and other clinical diagnostics, life science research and drug discovery services, data services and healthcare analytics, and consumer genetics products;
- academic and scientific institutions;
- governmental agencies; and
- public and private research organizations.

We may be unable to compete effectively against our competitors either because their products and services are superior or because they may have more expertise, experience, financial resources, or stronger business relationships. These competitors may have broader product lines and greater name recognition than we do. Furthermore, we must compete successfully in our existing markets, including women’s health and oncology, but also in any new markets we expand into. Even if we successfully develop new marketable products or services, our current and future competitors may develop products and services that are more commercially attractive than ours, and they may bring those products and services to market earlier or more effectively than we are able to. If we are unable to compete successfully against current or future competitors, we may be unable to increase market

acceptance for and sales of our tests and services, which could prevent us from increasing or sustaining our revenues or achieving sustained profitability.

We face intense competition. If we do not continue to innovate and provide products and services that are useful to users, we may not remain competitive, which could harm our business and operating results.

Our business environment is rapidly evolving and intensely competitive. Our businesses face changing technologies, shifting provider and patient needs, and frequent introductions of rival products and services. To compete successfully, we must accurately anticipate technology developments and deliver innovative, relevant and useful products, services, and technologies in a timely manner. As our businesses evolve, the competitive pressure to innovate will encompass a wider range of products and services. We must continue to invest significant resources in research and development, including through acquisitions and collaborations, joint ventures and partnerships, in order to enhance our current diagnostics and health information and data science technologies, and existing and new products and services based off these technologies.

We have many competitors in different industries. Our current and potential domestic and international competitors range from large and established companies to emerging start-ups in addition to academic and scientific institutions, and public and private research organizations. Some competitors have longer operating histories in various sectors. They can use their experience and resources in ways that could affect our competitive position, including by making acquisitions, continuing to invest heavily in research and development and in talent, initiating intellectual property claims (whether or not meritorious), and continuing to compete aggressively for our customers and partners in the market for health information and data science products and services. Our competitors may be able to innovate and provide products and services faster than we can or may foresee the need for products and services before we do.

Our operating results may also suffer if our products and services are not responsive to the needs of our customers and partners. As technologies continue to develop, our competitors may be able to offer products and services that are, or that are seen to be, substantially similar to or better than our current products and services. This may force us to compete in different ways and expend significant resources in order to remain competitive. If our competitors are more successful than us in developing compelling products and services for or in attracting and retaining customers or partners in the market for health information and data science products and services, our operating results could be harmed.

If third-party payors, including managed care organizations, private health insurers and government health plans, do not provide adequate reimbursement for our tests, or seek to amend or renegotiate their fee reimbursement schedules, or if we are unable to comply with their requirements for reimbursement, our commercial success could be negatively affected.

Our ability to increase the number of billable tests and our revenue therefrom will depend on our success in achieving reimbursement for our tests from third-party payors. Reimbursement by a payor may depend on a number of factors, including a payer’s determination that a test is appropriate, medically necessary, cost-effective and has received prior authorization. The commercial success of our current and future products, if approved, will depend on the extent to which our customers receive coverage and adequate reimbursement from third-party payors, including managed care organizations and government payers (e.g., Medicare and Medicaid).

Since each payer makes its own decision as to whether to establish a policy or enter into a contract to cover our tests, as well as the amount it will reimburse for a test, seeking these approvals is a time-consuming and costly process. In addition, the determination by a payer to cover and the amount it will reimburse for our tests will likely be made on an indication-by-indication basis and may consider our billing practices and reimbursements from other payors and from our patient billing programs. To date, we have obtained policy-level reimbursement approval or contractual reimbursement for some indications for our tests from most of the large commercial third-party payors in the United States, and the Centers for Medicare & Medicaid Services (“CMS”) provides reimbursement for our multi-gene tests for hereditary breast and ovarian cancer-related disorders as well as other tests. We believe that establishing adequate reimbursement from Medicare is an important factor in gaining adoption from healthcare providers. Our claims for reimbursement from third-party payors may be denied upon submission, and we must

appeal the claims. The appeals process is time consuming and expensive and may not result in payment. In cases where there is not a contracted rate for reimbursement, there is typically a greater coinsurance or copayment requirement from the patient, which may result in further delay or decreased likelihood of collection.

A significant portion of the payments for our tests are paid or reimbursed under insurance programs with third-party payors. To contain reimbursement and utilization rates, third-party payors often attempt to, or do in fact, amend or renegotiate their fee reimbursement schedules. Loss of revenue caused by third-party payor cost containment efforts or an inability to negotiate satisfactory reimbursement rates could have a material adverse effect on our revenue and results of operations.

Furthermore, in cases where we or our partners have established reimbursement rates with third-party payors, we face additional challenges in complying with their procedural requirements for reimbursement. These requirements often vary from payer to payer and are reassessed by third party payors on a regular basis, and we have needed additional time and resources to comply with them. We have also experienced, and may continue to experience, delays in or denials of coverage if we do not adequately comply with these requirements. Our third-party payors have also requested, and in the future may request, audits of the amounts paid to us. We have been required to repay certain amounts to payers as a result of such audits, and we could be adversely affected if we are required to repay other payers for alleged overpayments due to lack of compliance with their reimbursement policies. In addition, we have experienced, and may continue to experience, delays in reimbursement when we transition to being an in-network provider with a payer.

We expect to continue to focus our resources on increasing adoption of, and expanding coverage and reimbursement for, our current tests and any future tests we may develop or acquire. If we fail to expand and maintain broad adoption of, and coverage and reimbursement for, our tests, our ability to generate revenue could be harmed and our future prospects and our business could suffer.

We have limited experience with the development and commercialization of our databases and our health information and genomic platforms.

We have limited experience with the development or commercialization of clinical or research products in connection with the databases we manage and to which we have access, including our Centrellis and Traversa platforms. Our partners' usage of an advanced machine learning engine for therapeutic decision-making are at an early stage of development and usage under current and proposed collaborations, and we are continuing to develop new processes that may support the development of new therapeutics applications such as the delivery of personalized clinically actionable insights into clinical reports, clinical trial matching, real-world evidence trials, and clinical decision support, via an advanced programmable interface layer. Although our partners have invested significant financial resources to develop and utilize new technologies to support preclinical studies and other early research and development activities, and provide general and administrative support for these operations, our future success is dependent on our current and future partners' ability to successfully derive actionable insights from the database and our platform, and our partners' ability, where applicable, to obtain regulatory approval for new therapeutic solutions based off existing models or to obtain regulatory approval and marketing for, and to successfully commercialize, new therapeutics. The use of our platform and the databases it manages and to which it has access for these purposes will require additional regulatory investments for Centrellis, such as "good practice" quality guidelines and regulations ("GxP") and data quality and integrity controls.

Ethical, legal and social concerns related to the use of genomic medicine and health information analysis could reduce demand for our tests.

Genomic medicine and health information analysis has raised ethical, legal and social issues regarding privacy rights and the appropriate uses of the resulting information. Domestic and international governmental and regulatory authorities could, for social or other purposes, such as data privacy, limit or regulate the use of health information or health information testing or prohibit testing for specific information derived from health information testing, including, for example, data on genetic predisposition to certain conditions, particularly for those that have no known cure. Similarly, these concerns may lead patients to refuse to use, or clinicians to be reluctant to order, genomic tests as part of health information assessment even if permissible, or lead patients to withhold or withdraw

consent for our use of their data. These and other ethical, legal and social concerns may limit market acceptance of our tests or services or reduce the potential markets for our tests, or services either of which could have an adverse effect on our business, research, financial condition or results of operations.

If we fail to comply with federal and state laboratory licensing requirements or standards, we could lose the ability to perform our tests or experience disruptions to our business.

We are subject to Clinical Laboratory Improvement Amendments of 1988 ("CLIA"), a federal law that regulates clinical laboratories that perform testing on specimens derived from humans for the purpose of providing information for the diagnosis, prevention or treatment of disease. CLIA regulations establish specific standards with respect to personnel qualifications, facility administration, proficiency testing, quality control, quality assurance and inspections. CLIA certification is also required in order for us to be eligible to bill state and federal healthcare programs, as well as many private third-party payors, for our tests. We have current CLIA, CAP, and other certifications to conduct our tests at our laboratories in Connecticut. To renew these certifications, we are subject to survey and inspection on a regular basis and at the request of the certifying bodies. Moreover, CLIA inspectors may make random inspections of our clinical reference laboratories.

We would also be required to maintain in-state licenses if we were to conduct testing in other states. Several states require the licensure of out-of-state laboratories that accept specimens from certain states.

In addition to having laboratory licenses in New York, our clinical reference laboratories are approved on test-specific bases for the tests they run as laboratory-developed tests ("LDTs") by the New York State Department of Health ("NYDOH"). Other states may adopt similar licensure requirements in the future, which may require us to modify, delay or stop our operations in such jurisdictions. We may also be subject to regulation in foreign jurisdictions as we seek to expand international utilization of our tests or such jurisdictions adopt new licensure requirements, which may require review of our tests in order to offer them or may have other limitations such as restrictions on the transport of samples necessary for us to perform our tests that may limit our ability to make our tests available outside of the United States. Complying with licensure requirements in new jurisdictions may be expensive, time-consuming, and subject us to significant and unanticipated delays.

Failure to comply with applicable clinical laboratory licensure requirements or standards may result in a range of enforcement actions, including license suspension, limitation, or revocation, directed plan of action, onsite monitoring, civil monetary penalties, criminal sanctions, and cancellation of the laboratory's approval to receive Medicare and Medicaid payment for our services, as well as significant adverse publicity. Any sanction imposed under CLIA, its implementing regulations, or state or foreign laws or regulations governing clinical laboratory licensure, or our failure to renew our CLIA certifications, a state or foreign license, or accreditation, could have a material adverse effect on our business, financial condition and results of operations. Even if we were able to bring our laboratory back into compliance, we could incur significant expenses and potentially lose revenue in doing so.

The College of American Pathologists ("CAP") maintains a clinical laboratory accreditation program. CAP asserts that its program is "designed to go well beyond regulatory compliance" and helps laboratories achieve the highest standards of excellence to positively impact patient care. While not required to operate a CLIA-certified laboratory, many private insurers require CAP accreditation as a condition to contracting with clinical laboratories to cover their tests. In addition, some countries outside the United States require CAP accreditation as a condition to permitting clinical laboratories to test samples taken from their citizens. We have CAP accreditations for our laboratories. Failure to maintain CAP accreditation could have a material adverse effect on the sales of our tests and the results of our operations.

Additional Risks Related to GeneDx's Business and Operations

GeneDx needs to scale its infrastructure in advance of demand for its tests, and its failure to generate sufficient demand for its tests would have a negative impact on its business and its ability to attain profitability.

GeneDx's success depends in large part on its ability to extend its market position, to provide customers with high-quality test reports quickly and at a lower price than its competitors, and to achieve sufficient test volume to realize economies of scale. GeneDx's overall test volumes grew from approximately 134 thousand to 169 thousand

tests processed during the years ended December 31, 2020 and 2021. In addition, GeneDx regularly evaluates and refines its testing process, often significantly updating its workflows, including with respect to exome sequencing and whole genome sequencing. In order to execute GeneDx's business model, it intends to continue to invest heavily in order to significantly scale its infrastructure, including GeneDx's testing capacity, particularly, with respect to exome sequencing and whole genome sequencing to supplement its panel testing capabilities, and information systems, expand its commercial operations, customer service, billing and systems processes and enhance its internal quality assurance program. GeneDx expects that much of this growth will be in advance of demand for its tests. GeneDx's and Sema4's current and future expense levels are to a large extent fixed and are largely based on investment plans and estimates of future revenue. Because the timing and amount of revenue from GeneDx's tests is difficult to forecast, when revenue does not meet expectations, GeneDx may not be able to adjust its spending promptly or reduce spending to levels commensurate with its revenue. Even if GeneDx successfully scales its infrastructure and operations, there can be no assurance that tests will increase at levels consistent with the growth of GeneDx's infrastructure. If GeneDx fails to generate demand commensurate with this growth or if it fails to scale its infrastructure sufficiently in advance of demand to successfully meet such demand, its business, prospects, financial condition and results of operations could be adversely affected.

If GeneDx is not able to continue to generate substantial demand of its tests, its commercial success will be negatively affected.

GeneDx's business model assumes that it will be able to generate significant test volume, particularly with respect to exome sequencing and whole genome sequencing in addition to its panel testing offerings, and it may not succeed in continuing to drive adoption of its tests to achieve sufficient volumes. Inasmuch as detailed genetic data from exome and whole genome sequencing has only recently become available at relatively affordable prices, the continued pace and degree of clinical acceptance of the utility of such testing is uncertain. Specifically, it is uncertain how much genetic data will be accepted as necessary or useful, as well as how detailed that data should be, particularly since medical practitioners may have become accustomed to genetic testing that is specific to one or a few genes and may not embrace the utility of exome sequencing and whole genome sequencing. Given the substantial amount of additional information available from a broad-based testing panel such as GeneDx's, there may be distrust as to the reliability of such information when compared with more limited and focused genetic tests. To generate further demand for GeneDx's tests, GeneDx will need to continue to make clinicians aware of the benefits of its tests, including the price, the breadth of its testing options, and the benefits of having additional genetic data available from which to make treatment decisions. A lack of or delay in clinical acceptance of GeneDx's exome sequencing and whole genome sequencing testing, or its legacy broad-based panels testing, would negatively impact sales and market acceptance of GeneDx's tests and limit its revenue growth and potential profitability. Genetic testing is expensive and many potential customers may be sensitive to pricing. In addition, potential customers may not adopt GeneDx's tests if adequate reimbursement is not available, or if GeneDx is not able to maintain low prices relative to its competitors.

If GeneDx is not able to generate demand for its tests at sufficient volume, or if it takes significantly more time to generate this demand than GeneDx anticipates, GeneDx's business, prospects, financial condition and results of operations could be materially harmed.

GeneDx has devoted a portion of its resources to the development and commercialization of exome sequencing and whole genome sequencing, and to research and development activities related to such sequencing and the analysis thereof, including clinical and regulatory initiatives to obtain diagnostic clearance and marketing approval. The demand for these regulated products is relatively unproven, and GeneDx may not be successful in achieving market awareness and demand for these products through its and, following completion of the Acquisition, Sema4's sales and marketing operations.

If GeneDx's laboratories become inoperable due to disasters, health epidemics or for any other reasons, it will be unable to perform tests and its business will be harmed.

GeneDx performs all of its tests at its production facilities in Gaithersburg, Maryland. GeneDx's laboratories and the equipment it uses to perform its tests would be costly to replace and could require substantial lead time to replace and qualify for use. GeneDx's laboratories may be harmed or rendered inoperable by natural or man-made

disasters, including flooding, fire and power outages, or by health epidemics, which may render it difficult or impossible for GeneDx to perform its tests for some period of time. The inability to perform GeneDx's tests or the backlog that could develop if its laboratories are inoperable for even a short period of time may result in the loss of customers or harm its reputation. Although GeneDx maintains insurance for damage to its property and the disruption of its business, this insurance may not be sufficient to cover all potential losses and may not continue to be available to GeneDx on acceptable terms, if at all.

Risks Related to Our Business Model

We rely on highly skilled personnel in a broad array of disciplines and, if we are unable to hire, retain or motivate these individuals, or maintain our corporate culture, we may not be able to maintain the quality of our services or grow effectively.

Our performance, including our research and development programs and laboratory operations, largely depends on our continuing ability to identify, hire, develop, motivate and retain highly skilled personnel for all areas of our organization, including software developers, geneticists, biostatisticians, bioinformaticians, data scientists, certified laboratory directors and technicians and other scientific and technical personnel to process and interpret our tests and related data. In addition, we may need to continue to expand our sales force with qualified and experienced personnel. Competition in our industry for qualified employees is intense, and we may not be able to attract or retain qualified personnel in the future due to the competition for qualified personnel among life science and technology businesses as well as universities and public and private research institutions, particularly in the New York City and the tri-state area. Further, we may be unable to obtain the necessary visas for foreign personnel to work in the United States. In addition, our compensation arrangements, such as our equity award programs, may not always be successful in attracting new employees and retaining and motivating our existing employees. If we are not able to attract and retain the necessary personnel to accomplish our business objectives, we may experience constraints that could adversely affect our ability to scale our business, support our research and development efforts and our clinical laboratories. We believe that our corporate culture fosters innovation, creativity and teamwork. However, as our organization grows, we may find it increasingly difficult to maintain the beneficial aspects of our corporate culture. This could negatively impact our ability to retain and attract employees and our future success.

The loss of any member or change in structure of our senior management team could adversely affect our business.

Our success depends in large part upon the skills, experience and performance of members of our executive management team and others in key leadership positions. The efforts of these persons will be critical to us as we continue to develop our technologies and test processes and focus on scaling our business. If we were to lose one or more key executives, including our Chief Executive Officer, Katherine Stueland, and our founder, president and Chief Research & Development Officer, Dr. Eric Schadt, we may experience difficulties in competing effectively, developing our tests and technologies and implementing our business strategy. Only certain of our executives have employment contracts, and the majority of our employees are at-will, which means that either we or any employee may terminate their employment at any time or in the notice period set forth in an executive's contract. In particular, in connection with the closing of the Acquisition, Dr. Schadt ceased serving as our Chief Executive Officer and we have not yet entered into a new employment contract with Dr. Schadt. We also do not carry key person insurance for any of our executives or employees. In addition, we do not have long-term retention agreements in place with our executive officers. Furthermore, we compete against other leading companies in the diagnostics, health information, and data sciences markets for top talent. If such competitors offer better compensation or opportunities, there is no guarantee that we would be able to retain our key executives.

Our founder, president and Chief Research & Development Officer, Eric Schadt, and certain other of our employees have performed, and will continue to perform, duties for or on behalf of Mount Sinai.

Our founder, president and Chief Research & Development Officer, Eric Schadt, and certain of our other employees continue to perform duties for or on behalf of the Mount Sinai Health System, which refer to together with its related entities as Mount Sinai. In the case of Dr. Schadt, in addition to serving as our president and Chief Research & Development Officer and as a director, Dr. Schadt also serves as the Dean for Precision Medicine and a

professor at Icahn School of Medicine at Mount Sinai ("ISMMS"). We expect Dr. Schadt to continue to devote a substantial amount of time to the research and development responsibilities for our company while maintaining certain duties for Mount Sinai. Though we do not expect Dr. Schadt's role as our president and Chief Research & Development Officer and a director to conflict with his roles at Mount Sinai, there can be no guarantee that such conflicts will not occur in the future.

We may not be able to manage our future growth effectively, which could make it difficult to execute our business strategy.

Our expected future growth could create a strain on our organizational, administrative and operational infrastructure, including data and laboratory operations, quality control, customer service, marketing and sales, and management. We may not be able to maintain the quality of or expected turnaround times for our products or services, or satisfy customer demand as it grows. We may need to continue expanding our sales force to facilitate our growth, and we may have difficulties locating, recruiting, training and retaining sales personnel. Our ability to manage our growth effectively will require us to continue to improve our operational, financial and management controls, as well as our reporting systems and procedures. As we grow, any failure of our controls or interruption of our facilities or systems could have a negative impact on our business and financial operations. We plan to develop and launch new versions of our Centrellis and Traversa platforms and our core diagnostic products, which will affect a broad range of business processes and functional areas. The time and resources required to implement these new systems is uncertain, and failure to complete these activities in a timely and efficient manner could adversely affect our operations. Future growth in our business could also make it difficult for it to maintain our corporate culture. If we are unable to manage our growth effectively, it may be difficult for us to execute our business strategy and our business could be harmed.

We need to scale our infrastructure in advance of demand for our products and services, and our failure to generate sufficient demand for our products and services would have a negative impact on our business and our ability to attain profitability.

Our success depends in large part on our ability to extend our market position, to provide customers with high-quality health reports and health information and data science services in a manner that differentiates us from our competitors, and to deploy technologies and achieve sufficient volumes to realize economies of scale. In order to execute our business model, we intend to continue to invest heavily in order to significantly scale our infrastructure, including our lab infrastructure and testing capacity and our information and computing systems, expand our commercial operations, customer service, billing and systems processes and enhance our internal quality assurance program. We will also need to enhance our capacity for data privacy management as we scale our infrastructure. We expect that much of this growth will be in advance of both demand for our products and services as well as our ability to diversify our offerings, including services related to Centrellis and Traversa and the databases we manage and to which we have access, and our ability to find appropriate partners through collaborations and acquisitions. Our current and future expense levels are to a large extent fixed and are largely based on our investment plans and our estimates of future revenue. Because the timing and amount of revenue from our products and services are difficult to forecast, when revenue does not meet our expectations, we may not be able to adjust our spending promptly or reduce our spending to levels commensurate with our revenue. Even if we are able to successfully scale our infrastructure and operations while successfully diversifying our offering, we cannot assure you that demand for our products and services, including our Centrellis platform, will increase at levels consistent with the growth of our infrastructure. If we fail to generate demand commensurate with this growth or if we fail to scale our infrastructure sufficiently in advance of demand to successfully meet such demand, our business, prospects, financial condition and results of operations could be adversely affected.

International expansion of our business could expose us to business, regulatory, political, operational, financial and economic risks associated with doing business outside of the United States.

When cleared, authorized or approved, we and our collaborators may market, sell, and distribute our products and services outside of the United States, and our business would be subject to risks associated with doing business outside of the United States, including an increase in our expenses and diversion of our management's attention

from the development of future products and services. Accordingly, our business and financial results in the future could be adversely affected due to a variety of factors, including:

- multiple, conflicting and changing laws and regulations such as privacy, security and data use regulations, tax laws, export and import restrictions, economic sanctions and embargoes, employment laws, anticorruption laws, regulatory requirements, reimbursement or payer regimes and other governmental;
- approvals, permits and licenses;
- failure by us, our collaborators or our distributors to obtain regulatory clearance, authorization or approval for the use of our products and services in various countries;
- additional potentially relevant third-party patent rights;
- complexities and difficulties in obtaining intellectual property protection and enforcing our intellectual property;
- difficulties in staffing and managing foreign operations, including repatriating foreign earned profits;
- complexities associated with managing multiple payer reimbursement regimes, government payers or patient self-pay systems;
- difficulties in negotiating favorable reimbursement negotiations with governmental authorities;
- logistics and regulations associated with shipping samples, including infrastructure conditions and transportation delays;
- limits in our ability to penetrate international markets if we are not able to conduct our clinical diagnostic services locally;
- financial risks, such as longer payment cycles, difficulty collecting accounts receivable, the impact of local and regional financial crises on demand and payment for our products and services and exposure to foreign currency exchange rate fluctuations;
- international regulations and license requirements that may restrict foreign investment in and operation of the internet, IT infrastructure, data centers and other sectors, and international transfers of data;
- natural disasters, political and economic instability, including wars, terrorism and political unrest, and outbreak of disease;
- boycotts, curtailment of trade and other business restrictions; and
- regulatory and compliance risks that relate to maintaining accurate information and control over sales and distributors' activities that may fall within the purview of the Foreign Corrupt Practices Act of 1977 ("FCPA"), its books and records provisions, or its anti-bribery provisions or laws similar to the FCPA in other jurisdictions in which we may in the future operate, such as the United Kingdom's Bribery Act of 2010 and anti-bribery requirements of member states in the European Union ("EU").

Any of these factors could significantly harm our future international expansion and operations and, consequently, our revenue and results of operations.

Unfavorable U.S. or global economic conditions could adversely affect our business, financial condition or results of operations.

Our results of operations could be adversely affected by general conditions in the global economy and financial markets. A severe or prolonged economic downturn or increase in inflation rates could result in a variety of risks to our business, including weakened demand for our products and services and our ability to raise additional capital when needed on favorable terms, if at all. A weak declining or inflationary economy could strain our collaborators

and suppliers, possibly resulting in supply disruption, or cause delays in their payments to us. Any of the foregoing could harm our business and we cannot anticipate all of the ways in which the current economic climate and financial market conditions could adversely impact our business.

We rely on a limited number of suppliers or, in some cases, single suppliers, for some of our laboratory instruments and materials and may not be able to find replacements or immediately transition to alternative suppliers or service providers.

We have sourced and will continue to source components of our diagnostic testing workflow, including sequencers and other laboratory equipment, reagents, lab supplies and other laboratory services and materials and related services, from third parties.

Our failure to maintain a continued supply of our sequencers and other laboratory equipment, reagents, lab supplies and other laboratory services and materials, along with the right to use certain hardware and software and related services, would adversely impact our business, financial condition, and results of operations. In particular, while we are seeking to validate our tests on additional sequencing platforms we have not, to date, validated a viable alternative sequencing platform on which our testing could be run in a commercially viable manner. These efforts will require significant resources, expenditures and time and attention of management, and there is no guarantee that we will be successful in implementing any such sequencing platforms in a commercially sustainable way. We also cannot guarantee that we will appropriately prioritize or select alternative sequencing platforms on which to focus our efforts, in particular given our limited product and research and development resources and various business initiatives, which could result in increased costs and delayed timelines or otherwise adversely impact our business and results of operations.

Because we rely on third-party manufacturers, we do not control the manufacture of these components, including whether such components will meet our quality control requirements, nor the ability of our suppliers to comply with applicable legal and regulatory requirements. In many cases, our suppliers are not contractually required to supply these components to the quality or performance standards that we require. If the supply of components we receive does not meet our quality control or performance standards, we may not be able to use the components, or if we use them not knowing that they are of inadequate quality, which occasionally occurs with respect to certain reagents, our tests may not work properly or at all, or may provide erroneous results, and we may be subject to significant delays caused by interruption in production or manufacturing or to lost revenue from such interruption or from spoiled tests. In addition, any natural or other disaster, acts of war or terrorism, shipping embargoes, labor unrest, political instability, outbreak of disease or similar events at our third-party manufacturers' facilities that cause a loss of manufacturing capacity would heighten the risks that it faces.

In the event of any adverse developments with our sole suppliers, or if any of our sole suppliers modifies any of the components they supply to us, our ability to supply our products may be interrupted, and obtaining substitute components could be difficult or require us to re-design or re-validate our products. Our failure to maintain a continued supply of components, or a supply that meets our quality control requirements, or changes to or termination of our agreements or inability to renew our agreements with these parties or enter into new agreements with other suppliers could result in the loss of access to important components of our tests and impact our test performance or affect our ability to perform our tests in a timely manner or at all, which could impair, delay or suspend our commercialization activities. In the event that we transition to a new supplier from any of our sole suppliers, doing so could be time-consuming and expensive, may result in interruptions in our ability to supply our products to the market, could affect the performance of our tests or could require that we re-validate our affected tests using replacement equipment and supplies, which could delay the performance of our tests, impact diagnostic solutions and heath information derived from such tests, and result in increased costs. Any of these occurrences could have a material adverse effect on our business, financial condition and results of operations.

We rely on a limited number of product and service providers for data infrastructure and analytics capabilities, and any disruption of, or interference with, our use of data and workflow services could adversely affect our

business, financial condition, and results of operations, and we may not be able to find replacements or immediately transition to alternative products or service providers.

We currently rely upon third-party services for data storage and workflow management, including cloud storage solution providers, such as Amazon Web Services ("AWS") and Google Cloud Platform ("GCP"). We rely on each of AWS and GCP features to complete several vital workflows in our health information and data science service delivery. To varying degrees some of those services are proprietary to how each platform performs in connection with our current usage of the services. Further, we have also built several proprietary workflows with our vendor and partner Command Health where we maintain versions of developed software on such platforms.

Nearly all of our data storage and analytics are conducted on, and the data and content we generate on our platforms are processed through, servers hosted by these providers, particularly AWS and GCP. We also rely on email service providers, bandwidth providers, internet service providers and mobile networks to deliver communications to patients, physicians and partners and to allow patients, physicians and our partners to access various offerings from our platforms. If our third-party vendors are unable or unwilling to provide the services necessary to support our business, or if our agreements with such vendors are terminated, our operations could be significantly disrupted. Some of our vendor agreements may be unilaterally terminated by the licensor for convenience, including with respect to AWS or GCP, and if such agreements are terminated, we may not be able to enter into similar relationships in the future on reasonable terms or at all.

Any damage to, or failure of, our systems or the systems of our third-party data centers or our other third-party providers could result in interruptions to the availability or functionality of database and platforms. As a result, we could lose health information data and miss opportunities to acquire and retain patients, physicians and partners including health systems and pharmaceutical and biotech companies, which could result in decreased revenue. If for any reason our arrangements with our data centers or third-party providers are terminated or interrupted, such termination or interruption could adversely affect our business, financial condition and results of operations. We exercise little control over these providers, which increases our vulnerability to problems with the services they provide. We could incur additional expense in arranging for new or redesigned facilities, technology, services and support. In addition, the failure of our third-party data centers or any other third-party providers to meet our capacity needs or any system failure as a result of reliance on third parties, including network, software or hardware failure, which causes a delay or interruption in our services and products, including our ability to handle existing or increased processing of data on our platforms, could have a material adverse effect on our business, revenues, operating results and financial condition.

Our current and future products and services may never achieve significant commercial market acceptance.

Our success depends on the market's confidence that we can provide data-driven research and diagnostic products and services that improve clinical outcomes, lower healthcare costs and enable better product development by Biopharma companies. Failure of our products and services, or those jointly developed with our collaborators, to perform as expected or to be updated to meet market demands could significantly impair our operating results and our reputation. We believe patients, health systems, clinicians, academic institutions and Biopharma companies are likely to be particularly sensitive to defects, errors, inaccuracies and delays with our products and services. Furthermore, inadequate performance of these products or services may result in lower confidence in our Centrellis platform in general.

We and our collaborators may not succeed in achieving significant commercial market acceptance for our current or future products and services due to a number of factors, including:

- Our ability to demonstrate the utility of our platforms including Centrellis and Traversa, and related products and services and their potential advantages over existing clinical artificial intelligence technology, life sciences research, clinical diagnostic and drug discovery technologies to academic institutions, Biopharma companies and the medical community;
- Our ability, and that of our collaborators, to perform clinical trials or other research to gather adequate evidence and/or to secure and maintain FDA and other regulatory clearance authorization or approval for our products or products developed based off our platform;

- the agreement by third-party payors to reimburse our products or services, the scope and extent of which will affect patients' willingness or ability to pay for our products or services and will likely heavily influence physicians' decisions to recommend our products or services;
- the rate of adoption of our platforms and related products and services by academic institutions, clinicians, patients, key opinion leaders, advocacy groups and Biopharma companies; and
- the impact of our investments in product and services, and technological innovation and commercial growth.

Additionally, our customers and collaborators, including Mount Sinai, may decide to decrease or discontinue their use of our products and services due to changes in their research and development plans, failures in their clinical trials, financial constraints, the regulatory environment, negative publicity about our products and services, competing products or the reimbursement landscape, all of which are circumstances outside of our control. We may not be successful in addressing these or other factors that might affect the market acceptance of our products, services and technologies. Failure to achieve widespread market acceptance of our platform and related products and services would materially harm our business, financial condition and results of operations.

Our projections are subject to significant risks, assumptions, estimates and uncertainties, including assumptions regarding adoption of our products and services. As a result, our projected revenues, market share, expenses and profitability may differ materially from our expectations in any given quarter or fiscal year.

We operate in rapidly changing and competitive industries and our projections are subject to the risks and assumptions made by our management with respect to these industries. Operating results are difficult to forecast as they generally depend on our assessment of the timing of adoption of our current and future products and services, which is uncertain. Furthermore, as we invest in the continued development of new businesses that have yet to achieve significant commercial success, whether because of competition or otherwise, we may not recover the often substantial up-front costs of developing and marketing those products and services or recover the opportunity cost of diverting management and financial resources away from other products or services. Additionally, our business may be affected by reductions in customer or partner demand as a result of a number of factors which may be difficult to predict. Similarly, our assumptions and expectations with respect to margins and the pricing of our products and services may not prove to be accurate as a result of competitive pressures or customer or partner demands. This may result in decreased revenue, and we may be unable to adopt measures in a timely manner to compensate for any unexpected shortfall in revenue. This inability could cause our operating results in a given quarter or year to be higher or lower than expected. Any failure to achieve our projected operating results could harm the trading price of our securities and our financial position.

We have estimated the sizes of the markets for our current and future products and services, and these markets may be smaller than we estimate.

Our estimates of the annual addressable markets for our current products and services and those under development are based on a number of internal and third-party estimates, including, without limitation, the number of patients who have developed one or more of a broad range of cancers, the number of individuals who are at a higher risk for developing one or more of a broad range of cancers, the number of individuals who have developed or are at a higher risk of developing certain disorders, the number of individuals with certain infectious diseases. The estimates also depend on whether we or our collaborators are able to engage, diagnose or treat patients through or using our products and services, the number of potential clinical tests utilized per treatment course per patient, the ongoing engagement by patients, physicians and health systems on our platforms, and the assumed prices at which we can sell our current and future products and services for markets that have not been established. While we believe our assumptions and the data underlying our estimates are reasonable, these assumptions and estimates may not be correct and the conditions supporting our assumptions or estimates may change at any time, thereby reducing the predictive accuracy of these underlying factors. As a result, our estimates of the annual addressable market for our current or future products and services may prove to be incorrect. If the actual number of patients who would benefit from our products or services, the price at which we can sell future products and services or the annual

addressable market for our products or services is smaller than we have estimated, it may impair our sales growth and have an adverse impact on our business.

Uncertainty in the development and commercialization of our enhanced or new tests or services could materially adversely affect our business, financial condition and results of operations.

Our success will depend in part on our ability to effectively introduce enhanced or new offerings. The focus of our research and development efforts has expanded beyond our current products and services, focused substantially on women's health and oncology, as we are now also applying our expertise in processing and analyzing new areas, such as rare diseases. In recent years we have developed and/or launched several new products or enhanced versions of existing products, including products leveraging alternative sequencing technologies, and we expect to continue our efforts in all of these areas and more. The development and launch of enhanced or new tests requires the completion of certain clinical development and commercialization activities that are complex, costly, time-intensive and uncertain, and requires us to accurately anticipate patients', clinicians', payors' and other counterparties' attitudes and needs as well as emerging technology and industry trends. This process is conducted in various stages, and each stage presents the risk that we will not achieve our goals.

We have relatively limited experience developing and commercializing products and services outside of the fields of women's health and oncology diagnostics, and we may not be successful in our current or future efforts to do so. We also have limited experience forecasting our future financial performance from our new products and services, and our actual results may fall below our financial guidance or other projections, or the expectations of analysts or investors, which could cause the price of our Class A common stock and warrants to decline. We may experience research and development, regulatory, marketing and other difficulties that could delay or prevent our introduction of enhanced or new tests and result in increased costs and the diversion of management's attention and resources from other business matters, such as from our current product and service offerings, which currently represent the significant majority of our current revenues. For example, any tests that we may enhance or develop may not prove to be clinically effective in clinical trials or commercially, or may not meet our desired target product profile, be offered at acceptable cost and with the sensitivity, specificity and other test performance metrics necessary to address the relevant clinical need or commercial opportunity; our test performance in commercial experience may be inconsistent with our validation or other clinical data; we may not be successful in achieving market awareness and demand, whether through our own sales and marketing operations or through collaborative arrangements; healthcare providers may not order or use, or third-party payors may not reimburse for, any tests that we may enhance or develop; or we may otherwise have to abandon a test or service in which we have invested substantial resources. For example, we are subject to the risk that the biological characteristics of the genetic mutations we seek to target, and upon which our technologies rely, are uncertain and difficult to predict. We may also experience unforeseen difficulties when implementing updates to our processes.

We cannot assure you that we can successfully complete the development of any new or enhanced product, or that we can establish or maintain the collaborative relationships that may be essential to our collaborators' goals, including clinical development or commercialization efforts. For example, clinical development requires large numbers of patient specimens and, for certain products, may require large, prospective, and controlled clinical trials. We may not be able to identify and help enroll patients or collect a sufficient amount of appropriate health data in a timely manner; or we may experience delays during data analysis process due to slower than anticipated supplies of patient data, or due to changes in study design or inputs, or other unforeseen circumstances; or we or our collaborators may be unable to afford or manage the large-sized clinical trials that some of our planned future products may require. Further, the publication of clinical data in peer-reviewed journals is a crucial step in commercializing and obtaining reimbursement for certain diagnostic solutions such as the ones offered by us, and our inability to control when, if ever, results are published may delay or limit our ability to derive sufficient revenues from any diagnostic solution that is the subject of or component in a study. Peer-reviewed publications regarding our products may be limited by many factors, including delays in the completion of, poor design of, or lack of compelling data from, clinical studies, as well as delays in the review, acceptance and publication process. If our diagnostic solutions or the technology underlying our current and future diagnostic solutions do not receive sufficient favorable exposure in peer-reviewed publications, the rate of clinician adoption of our diagnostic solutions and positive reimbursement coverage determinations for our diagnostic solutions could be negatively affected.

In addition, development of the data necessary to obtain regulatory clearance and approval of tests is time-consuming and carries with it the risk of not yielding the desired results. The performance achieved in published studies may not be repeated in later studies that may be required to obtain premarket clearance or approval from the FDA. Limited results from earlier-stage verification studies may not predict results from studies in larger numbers of subjects drawn from more diverse populations over longer periods of time. Unfavorable results from ongoing preclinical and clinical studies may delay, limit or prevent regulatory approvals or clearances or commercialization of our product candidates, or could result in delays, modifications or abandonment of ongoing analytical or future clinical studies, or abandonment of a product development program, any of which could have a material adverse effect on our business, operating results or financial condition.

These and other factors beyond our control could result in delays or other difficulties in the research and development, approval, production, launch, marketing or distribution of enhanced or new tests and could adversely affect our competitive position and results of operations.

We currently use, and in the future expect to increase our use of, information and rights from customers, strategic partners, and collaborators for several aspects of our operations, and if we cannot maintain current and enter new relationships with these parties with adequate access and authorization to such information, our business will suffer.

Accessing, combining, curating, and analyzing health information, including longitudinal patient medical history data and genetic data, are core features of the Centrellis platform and key elements of our long term business model. The regulatory landscape around the storage, processing and deidentification of genetic data is evolving globally and greatly impacts the ability of us, our strategic partners and collaborators to process and use the data in connection with our products and services.

We have limited resources to conduct our health information services, data analysis, life sciences research, clinical diagnostics and drug discovery operations and have not yet fully established infrastructure for sales, marketing or distribution in connection with our products and services. Accordingly, we have entered into service and collaboration agreements under which our partners, including health systems, have provided, and may in the future provide, funding, data access, and other resources for developing and potentially commercializing our products and services. These collaborations may result in us incurring significant expenses in pursuit of potential products and services, and we may not be successful in identifying, developing or commercializing any potential products or services.

Our future success depends in part on our ability to maintain and grow our existing relationships, including with Mount Sinai, and to establish new relationships. Many factors may impact the success of such collaborations, including our ability to perform our obligations, our collaborators' satisfaction with our products and services, our collaborators' performance of their obligations to us, our collaborators' internal priorities, resource allocation decisions and competitive opportunities, the ability to obtain regulatory approvals, disagreements with collaborators, the costs required of either party to the collaboration and related financing needs, and operating, legal and other risks in any relevant jurisdiction. Our ability to support such collaborations may also depend on factors outside of our control including the willingness of patients to engage with us and share their data, societal perspectives on privacy, and the willingness of health systems to establish collaborations, relationships and programs utilizing their data, all of which may impact the utility of these databases and the insights we will be able to generate from expanding datasets. In addition to reducing our revenue or delaying the development of our future products and services, the loss of one or more of these relationships may reduce our access to research, longitudinal patient health data, clinical trials or computing technologies that facilitate the collection and incorporation of new information into the databases we manage and to which we have access. All of the risks relating to product and service development, regulatory clearance, authorization or approval and commercialization described herein apply to us derivatively through the activities of our collaborators. We engage in conversations with companies regarding potential collaborations on an ongoing basis. These conversations may not result in a commercial agreement. Even if an agreement is reached, the resulting relationship may not be successful, and any products and services developed as part of the collaboration may not produce successful outcomes. Speculation in the industry about our existing or potential collaborations can be a catalyst for adverse speculation about us, or our products or services, which can adversely affect our reputation and our business.

If our products and services do not perform as expected, we may not realize the expected benefits of such products and services.

The success of our products depends on the market's confidence that we can provide reliable products and services that enable high quality diagnostic testing and health information services with high sensitivity and specificity and short turnaround times. There is no guarantee that the accuracy and reproducibility we have demonstrated to date will continue as our product deliveries increase and our product and service portfolio expands.

Our products and services use a number of complex and sophisticated biochemical and bioinformatics processes, many of which are highly sensitive to external factors. An operational, technological or other failure in one of these complex processes or fluctuations in external variables may result in sensitivity or specificity rates that are lower than we anticipate or result in longer than expected turnaround times. In addition, labs are required to validate their processes before using our products for clinical purposes. These validations are outside of our control. If our products do not perform, or are perceived to not have performed, as expected or favorably in it to competitive products, our operating results, reputation, and business will suffer, and we may also be subject to legal claims arising from product limitations, errors, or inaccuracies.

If our sales and development or other collaborations and commercial relationships are not successful and we are not able to offset the resulting impact through our own efforts or through agreements with new partners, our commercialization activities may be impaired and our financial results could be adversely affected.

Part of our business strategy is to develop relationships with health systems, biopharma companies, and other partners to utilize our products and to provide access to data. Developing and commercializing products with third parties reduces our control over such development and commercialization efforts and subjects us to the various risks inherent in a joint effort with a third party, such as delays, operational issues, technical difficulties and other contingencies outside of our influence or control. The financial condition of these third parties could weaken, or they could terminate their relationship with us and/or stop sharing data or other information; reduce their marketing efforts relating to our products; develop and commercialize, or otherwise utilize competing products in addition to or in lieu of our tests; merge with or be acquired by a competitor of us or a company that chooses to de-prioritize the efforts to utilize our products or provide us with adequate data; or otherwise breach their agreements with us. Further, we must expend resources to operationalize our existing collaborations with our health system partners, which requires substantial effort in areas such as integrations for testing workflow, EMR, consents, marketing, and billing. To the extent, we are not successful at operationalizing existing collaborations with health partners, we may not be able to further improve or pursue new agreements with additional partners. Furthermore, our partners may misappropriate our trade secrets or use our proprietary information in such a way as to expose us to litigation and potential liability; and our compliance risk may increase to the extent that we are responsible for our partners' activities. Disagreements or disputes with our health systems and other partners, including disagreements over customers, proprietary or other rights or our or their compliance with financial or other contractual obligations, might cause delays or impair the development or commercialization of our products, services, and technologies, lead to additional responsibilities for us with respect to new products, services and technologies, or result in litigation or arbitration, any of which would divert management attention and resources and be time-consuming and expensive. As is typical for companies in our industry, it is continually evaluating and pursuing various strategic or commercial relationships, some of which may involve the sale and issuance of our Class A common stock, which could result in additional dilution of the percentage ownership of our stockholders and could cause the price of our Class A common stock and warrants to decline.

If our relationships are not successful, our ability to develop and improve of products, services and technologies, and to successfully execute our commercial strategy regarding such products, services and technologies, could be compromised.

If we are unable to deploy and maintain effective sales, marketing and medical affairs capabilities, we will have difficulty achieving market awareness and selling our products and services.

To achieve commercial success for our tests and our future products and services, we must continue to develop and grow our sales, marketing and medical affairs organizations to effectively explain to healthcare providers the

reliability, effectiveness and benefits of our current and future products and services as compared to alternatives. We may not be able to successfully manage our dispersed or inside sales forces or our sales force may not be effective. Because of the competition for their services, we may be unable to hire, partner with or retain additional qualified sales representatives or marketing or medical affairs personnel, either as our employees or independent contractors or through independent sales or other third-party organizations. Market competition for commercial, marketing and medical affairs talent is significant, and we may not be able to hire or retain such talent on commercially reasonable terms, if at all.

Establishing and maintaining sales, marketing and medical affairs capabilities will be expensive and time-consuming. Our expenses associated with maintaining our sales force may be disproportionate to the revenues we may be able to generate on sales of the certain tests or any future products or services.

We may never become profitable.

Sema4 has incurred losses since Sema4 was formed and we expect to continue to generate significant operating losses for the foreseeable future. As of December 31, 2021 and December 31, 2020, we have an accumulated deficit of approximately $575.4 million and $330.1 million, respectively. We expect to continue investing significantly toward development and commercialization of our health information technology and other products and services. If our revenue does not grow significantly, we will not be profitable. We cannot be certain that the revenue from the sale of any products or services based on our technologies will be sufficient to make us profitable.

Our operating results could be subject to significant fluctuation, which could increase the volatility of our stock and warrant prices and cause losses to our stockholders.

Our revenues and results of operations may fluctuate significantly, depending on a variety of factors, including the following:

- our success in marketing and selling, and changes in demand for, our tests, and the level of reimbursement and collection obtained for such tests;
- seasonal and environmental variations affecting healthcare provider recommendations for our tests and patient compliance with healthcare provider recommendations, including without limitation holidays, weather events, and circumstances such as the outbreak of coronavirus or influenza that may limit patient access to medical practices for diagnostic tests and preventive services;
- our success in collecting payments from third-party payors, patients and collaborative partners, variation in the timing of these payments and recognition of these payments as revenues;
- the pricing of our tests, including potential changes in CMS or other reimbursement rates;
- circumstances affecting our ability to provide our tests, including weather events, supply shortages, or regulatory or other circumstances that adversely affect our ability to manufacture our tests or process tests in our clinical laboratories;
- circumstances affecting our ability to provide health information and data science services to biopharma partners, including software or hardware failures, insufficient capacity, regulatory changes or other circumstances that adversely affect the ability of us to deliver these services;
- fluctuations in the amount and timing of our selling and marketing costs and our ability to manage costs and expenses and effectively implement our business;
- our research and development activities, including the timing of clinical trials; and
- our ability to collect, use, and commercialize data in a changing regulatory environment at a time when the public is growing increasingly concerned about privacy.

Our revenue growth rate could decline over time, and it may experience downward pressure on our operating margins in the future.

Our revenue growth rate could decline over time as a result of a number of factors, including increasing competition and the continued expansion of our business into a variety of new fields. Changes in geographic mix and product and service mix and an increasing competition for tests may also affect our revenue growth rate. We may also experience a decline in our revenue growth rate as our revenues increase to higher levels, if there is a decrease in the rate of adoption of our products, services, and technologies, among other factors.

In addition to a decline in our revenue growth rate, we may also experience downward pressure on our gross operating margins resulting from a variety of factors, such as the continued expansion of our business into new fields, including new products and services, as well as significant investments in new areas, all of which may have margins lower than those that we generate from testing. We may also experience downward pressure on our gross operating margins from increasing competition and increased costs for many aspects of our business. We may also pay increased fees to our partners as well as increased acquisition costs. We may also face an increase in infrastructure costs, supporting other businesses. Additionally, our expenditures to promote new products and services or to distribute certain products and services or increased investment in our innovation efforts across our Centrellis platform may affect our operating margins.

Due to these factors and the evolving nature of our business, our historical projected revenue growth rate and historical gross operating margins may not be indicative of our future performance.

We may need to raise additional capital to fund our existing operations, develop additional products and services, commercialize new products and services or expand our operations.

Sema4 has incurred net losses and negative cash flows from operations since its inception, including net losses of $245.4 million, $241.3 million and $29.7 million for the years ended December 31, 2021, 2020 and 2019, respectively. As of December 31, 2021, we had an accumulated deficit of $575.4 million. We expect to continue to generate significant operating losses for the foreseeable future, and we may therefore also seek to sell common or preferred equity or convertible debt securities, enter into a credit facility or another form of third-party funding or seek other debt financing.

We may also consider raising additional capital in the future to expand our business, to pursue strategic investments, to take advantage of financing opportunities or for other reasons, including to:

- increase our sales and marketing efforts to drive market adoption of our current and future products and services;
- fund development efforts for our current and future products and services;
- expand our products and services into other disease indications and clinical applications;
- acquire, license or invest in technologies;
- acquire or invest in complementary businesses or assets; and
- finance capital expenditures and general and administrative expenses.

Our present and future funding requirements will depend on many factors, including:

- our ability to achieve revenue growth;
- our rate of progress in establishing payer coverage and reimbursement arrangements with commercial third-party payors and government payers;
- the cost of expanding our laboratory operations and offerings, including our sales and marketing efforts;

- our rate of progress in, and cost of the sales and marketing activities associated with, establishing adoption of our Centrellis solution;
- our rate of progress in, and cost of research and development activities associated with, products and services in research and early development;
- the effect of competing technological, product and market developments;
- costs related to international expansion; and
- the potential cost of and delays in product development as a result of any regulatory oversight applicable to our products and services.

The various ways we could raise additional capital carry potential risks. If we raise funds by issuing equity securities, dilution to our stockholders could result. Any preferred equity securities issued also could provide for rights, preferences or privileges senior to those of holders of our Class A common stock. If we raise funds by issuing debt securities, those debt securities would have rights, preferences and privileges senior to those of holders of our Class A common stock. The terms of debt securities issued or borrowings pursuant to a credit agreement could impose significant restrictions on our operations. If we raise funds through collaborations and licensing arrangements, we might be required to relinquish significant rights to our technologies or products and services or grant licenses on terms that are not favorable to us.

We expect to make significant investments in our continued research and development of new products and services, which may not be successful.

We are seeking to leverage and deploy our Centrellis and Traversa platforms to develop a pipeline of future disease-specific research, diagnostic and therapeutic products and services. For example, we are attempting to extend current products into additional indications and sample types, and we are developing our population health program, and our pharmacogenomics solutions with a view toward advancing the development of tests designed to identify genetic variants for drug response that are associated with medically actionable and clinically relevant data to make more informed treatment decisions. We expect to incur significant expenses to advance these development efforts, but they may not be successful.

Developing new products and services is a speculative and risky endeavor. Products or services that initially show promise may fail to achieve the desired results or may not achieve acceptable levels of analytical accuracy or clinical utility. We may need to alter our products in development and repeat analysis or clinical studies before we identify a potentially successful product or service. Product development is expensive, may take years to complete and can have uncertain outcomes. Failure can occur at any stage of the development. If, after development, a product or service appears successful, we or our collaborators may, depending on the nature of the product or service, still need to obtain FDA and other regulatory clearances, authorizations or approvals before we can market it. In the case of clinical products, the FDA's clearance, authorization or approval pathways are likely to involve significant time, as well as additional research, development and clinical study expenditures. The FDA may not clear, authorize or approve any future product or service we develop. Even if we develop a product or service that receives regulatory clearance, authorization or approval, or succeeds in initial product testing, we or our collaborators would need to commit substantial resources to commercialize, sell and market it before it could be profitable, and the product or service may never be commercially successful. Additionally, development of any product or service may be disrupted or made less viable by the development of competing products or services.

New potential products and services may fail at any stage of development or recalled after commercialization and if we determine that any of our current or future products or services are unlikely to succeed, we may abandon them without any return on our investment. If we are unsuccessful in developing additional products or services, our potential for growth may be impaired.

We have identified material weaknesses, some of which have a pervasive effect across the organization, and may identify additional material weaknesses or significant deficiencies, in our internal controls over financial reporting. Our failure to remedy these matters could result in a material misstatement of our financial statements.

In the course of preparing Legacy Sema4's financial statements for 2020, 2019 and 2018, we identified material weaknesses in our internal control over financial reporting as of December 31, 2020, which could, if not remediated, result in material misstatements in our financial statements. These material weaknesses had not been fully remediated as of December 31, 2021. In addition, during 2021, management identified a misclassification related to certain costs included within cost of services for the years ended December 31, 2021, 2020 and 2019. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the annual or interim financial statements will not be prevented or detected on a timely basis. The material weaknesses identified related to the fact that we did not design and maintain accounting policies, procedures and controls to ensure complete, accurate and timely financial reporting in accordance with U.S. GAAP. Specifically, the material weaknesses identified included the following:

- We did not design and maintain accounting policies, processes and controls to analyze, account for and report our revenue arrangements in accordance with ASC 606, Revenue from Contracts with Customers, and ASC 605, Revenue Recognition.
- We did not design and maintain formal accounting policies, procedures and controls to achieve complete, accurate and timely financial accounting, reporting and disclosures, including controls over the preparation and review of account reconciliations and journal entries; the accounting for cost capitalization policies in accordance with ASC 330, Inventory, and ASC 350-40, Intangibles – Goodwill and Other – Internal-Use Software; and the application of ASC 840, Leases.
- We had not developed and effectively communicated to our employees our accounting policies and procedures, which resulted in inconsistent practices. Since these entity level programs have a pervasive effect across the organization, management has determined that these circumstances constitute a material weakness.
- Our accounting and operating systems lacked controls over access, and program change management that are needed to ensure access to financial data is adequately restricted to appropriate personnel.
- We do not have sufficient, qualified finance and accounting staff with the appropriate U.S. GAAP technical accounting expertise to identify, evaluate and account for accounting and financial reporting, and effectively design and implement systems and processes that allow for the timely production of accurate financial information in accordance with internal financial reporting timelines, commensurate with our size and the nature and complexity of our operations. As a result, we did not design and maintain formal accounting policies, processes and controls related to complex transactions necessary for an effective financial reporting process.

Our management is in the process of implementing a remediation plan that is expected to include policies and procedures to support internal control over financial reporting for a public company as well as supplementing the accounting and finance function with robust technical accounting and financial reporting experience and training. However, we cannot guarantee that the steps we have taken or may subsequently take have been or will be sufficient to remediate the material weaknesses or ensure that our internal controls are effective. However, as noted above, as of December 31, 2021, the material weaknesses have not yet been fully remediated.

Furthermore, as a public company, we are required to comply with certain rules and requirements related to our disclosure controls and procedures and our internal control over financial reporting. Any failure to develop or maintain effective controls as a public company, any deficiencies found in the technology system we use to support our controls, or any difficulties encountered in their implementation or improvement, could harm our operating results or cause us to fail to meet our reporting obligations and may result in a restatement of our financial statements for prior periods. For more information, see "*Risks Related to Being a Public Company—Our internal controls over financial reporting may not be effective and our independent registered public accounting firm may*

not be able to certify as to their effectiveness, which could have a significant and adverse effect on our business and reputation."

Our ability to use our net operating loss carry forwards and certain other tax attributes may be limited.

At December 31, 2021, our total gross deferred tax assets were $160.5 million. Due to our lack of earnings history, future deductible temporary differences related to compensation and uncertainties surrounding our ability to generate future taxable income, our net deferred tax assets have been fully offset by a valuation allowance. The deferred tax assets are primarily comprised of federal and state tax net operating losses and tax credit carryforwards, stock-based compensation and other tax deductible temporary differences.

Furthermore, under Section 382 of the Code, if a corporation undergoes an "ownership change," the corporation's ability to use its pre-change net operating loss carryforwards ("NOLs") and other pre-change tax attributes (such as research tax credits) to offset its future taxable income may be limited. In general, an "ownership change" occurs if there is a cumulative change in its ownership by "5% shareholders" that exceeds 50 percentage points over a rolling three-year period. Our existing NOLs and tax credit carryovers may be subject to limitations arising from previous ownership changes, and if we undergo one or more ownership changes in connection with completed acquisitions, including the Business Combination or the Acquisition, or future transactions in our stock, our ability to utilize NOLs and tax credit carryovers could be further limited by Section 382 of the Code. As a result, if we earn future taxable income, our ability to use our pre-change net operating loss and tax credit carryforwards to offset U.S. federal taxable income may be subject to limitations, which could potentially result in increased future tax liability to us. In addition, the Tax Cuts and Jobs Act limits the deduction for NOLs to 80% of current year taxable income and eliminates NOL carrybacks. Further, there may also be periods during which the use of NOLs is suspended or otherwise limited, which could accelerate or permanently increase state liability.

Risks Related to Our Key Relationships

We rely on third-party laboratories to perform certain elements of our service offerings.

A limited but meaningful portion of our genomic analysis services is performed by third-party laboratories and service providers, while the remaining portion is performed in our laboratories. The third-party laboratories are subject to contractual obligations to perform these services for us, but are not otherwise under our control. We therefore do not control the capacity and quality control efforts of these third-party laboratories other than through our ability to enforce contractual obligations on volume and quality systems, and we have no control over such laboratories' compliance with applicable legal and regulatory requirements. We also have no control over the timeliness of such laboratories' performance of their obligations to us, and the third-party laboratories that we have contracted with have in the past had, and occasionally continue to have, issues with delivering results to us or resolving issues with us within the time frames we expected or established in our contracts with them, which sometimes results in longer than expected turnaround times for, or negatively impacts the performance of, these tests and services. In the event of any adverse developments with these third-party laboratories or their ability to perform their obligations in a timely manner and in accordance with the standards that we and our customers expect, our ability to service customers may be delayed, interrupted or otherwise adversely affected, which could result in a loss of customers and harm to our reputation. Furthermore, when these issues arise, we have had to expend time, management's attention and other resources to address and remedy such issues.

We may not have sufficient alternative backup if one or more of the third-party laboratories that we contract with are unable to satisfy their obligations to us with sufficient performance, quality and timeliness, including as a result of the ongoing COVID-19 pandemic. Any natural or other disaster, acts of war or terrorism, shipping embargoes, labor unrest, political instability, outbreaks of disease or similar events at one or more of these third-party laboratories' facilities that causes a loss of capacity would heighten the risks that we face. Changes to or termination of agreements or inability to renew agreements with these third-party laboratories or enter into new agreements with other laboratories that are able to perform such portions of our service offerings could impair, delay or suspend our efforts to market and sell these services. In addition, certain third-party payors, including some state Medicaid payers, that we are under contract with may take the position that sending out testing to third-party laboratories and billing for such tests is contrary to the terms of its provider agreement and may refuse to pay us for

the testing. If any of these events occur, our business, financial condition and results of operations could suffer. Further, some state laws impose anti-markup restrictions that prevent an entity from realizing a profit margin on outsourced testing. If we are unable to markup outsourced testing, our revenues and operating margins may suffer.

We rely on Mount Sinai, a related party, and its clinicians for a portion of our test volume in connection with our diagnostic solutions and for data programs, and we have entered into certain other arrangements with Mount Sinai.

We rely on Mount Sinai, which is a related party, and its clinicians for a portion of our test volumes in connection with our diagnostic solutions and for a significant portion of the de-identified clinical records in our databases. In addition, we sublease certain facilities from Mount Sinai, we provide certain research and data services to Mount Sinai, and we and Mount Sinai have entered into certain collaborative and commercial arrangements. Furthermore, we may in the future enter into other contracts for services or other engagements with Mount Sinai.

Mount Sinai is primarily made up of not-for-profit hospitals, a medical and graduate school and employed clinicians. The charitable missions of the Mount Sinai entities include patient care, teaching and research. As such, the Mount Sinai entities are required to deal with us strictly on an arms-length, fair market value basis, and the interests of Mount Sinai may not necessarily be aligned with our interests or those of our other stockholders.

We are subject to risks as a result of our reliance on Mount Sinai, and if our transactions and relationship with Mount Sinai were to cease, our business could be disrupted and it could have a material adverse effect on our business, research, financial condition and results of operations.

In addition, ISMMS is one of our significant stockholders. ISMMS may choose to dispose of some or all of the shares of our Class A common stock held by it. Any disposal of shares of Class A common stock by ISMMS, or the perception that these sales could occur, could cause the market price of our stock or warrants to decline.

We rely on commercial courier delivery services to transport samples to our facilities in a timely and cost-efficient manner and if these delivery services are disrupted, our business could be harmed.

Our core business depends on our ability to quickly and reliably deliver test results to our customers. We typically receive blood, saliva, or tissue samples for analysis at our laboratory facilities within days of collection from the patient. Disruptions and errors in these delivery service and accessioning errors and breaches, whether due to error by the courier service, labor disruptions, bad weather, natural disaster, terrorist acts or threats, outbreaks of disease or for other reasons, could adversely affect specimen integrity, our ability to process or store samples in a timely manner and to service our customers, and ultimately our reputation and our business. In addition, if we are unable to continue to obtain expedited delivery services on commercially reasonable terms, our operating results may be adversely affected.

Risks Related to Acquisitions

As a result of the Acquisition, OPKO became a substantial holder of shares of our Class A common stock and sales by OPKO into the market in the future could cause the market price of our Class A common stock to drop significantly, even if our business is doing well.

As a result of the Acquisition, OPKO became the owner of 80 million shares of Class A common stock as of the Closing Date. OPKO is subject to transfer restrictions and requirements to dispose of its shares in marketed sales processes under the Shareholder Agreements, but those restrictions and requirements are finite and subject to exceptions.

If the shares held by OPKO or the other Lock-Up Holders are sold, or if it is perceived that they will be sold in the public market, the trading price of our Class A common stock could decline. For more information on the Lock-Up Shares and the applicable Lock-Up Periods see "*Certain Relationships and Related Party Transactions—Related Party Transactions Related to the Acquisition—Shareholder Agreements*."

Our ability to be successful following the Acquisition is dependent upon the efforts of our key personnel, including the key personnel of GeneDx. The loss of key personnel could negatively impact our operations and profitability our financial condition could suffer as a result.

Our ability to be successful following the Acquisition is dependent upon the efforts of our key personnel, including the key personnel of GeneDx (who became our employees as of the Closing). Although our key personnel are expected to continue remain with the Company in their current roles, it is possible that we will lose some key personnel, the loss of which could negatively impact the operations and profitability of our business.

GeneDx's success depends to a significant degree upon the continued contributions of senior management, certain of whom would be difficult to replace. Departure by certain of GeneDx's officers could have a material adverse effect on GeneDx's business, financial condition, or operating results. The services of such personnel may not continue to be available to us.

We have incurred and will continue to incur significant transaction and transition costs in connection with the Acquisition.

We have incurred significant, non-recurring costs in connection with consummating the Acquisition. Furthermore, we expect to incur additional significant, non-recurring costs in connection with the integration of the businesses of our company and GeneDx. We may also incur additional costs to retain key employees.

The anticipated benefits of the Acquisition may not be realized fully or at all or may take longer to realize than expected.

The Acquisition involves the integration of two companies that have previously operated independently. Prior to the announcement, we and GeneDx did not conduct any integration planning for the two companies, and our ability to do so prior to consummation of the Acquisition was limited by applicable law. Following the Closing, we are devoting significant management attention and resources to integrating the two businesses. Delays in this process could adversely affect the combined company's business, financial results, financial condition and stock price. Even if we are able to integrate the two companies' business operations successfully, there can be no assurance that this integration will result in the realization of the full benefits of synergies, cost savings, innovation and operational efficiencies that we expected from this integration or that these benefits will be achieved within the anticipated time frame.

If the Acquisition's benefits do not meet the expectations of investors, stockholders or financial analysts, the market price of our securities may decline.

If the benefits of the Acquisition do not meet the expectations of investors or securities analysts, the market price of our securities may decline. For additional factors that may affect the trading price of our securities see "*—Risks Related to Being a Public Company—If we do not meet the expectations of investors, stockholders or financial analysts, the market price of our securities may decline*."

The unaudited pro forma financial information included elsewhere in this prospectus may not be indicative of our future operating results or financial position.

The unaudited pro forma combined financial information in this prospectus is presented for illustrative purposes only and is not necessarily indicative of what our actual financial condition or results of operations would have been had the Acquisition been completed on the dates indicated. The unaudited pro forma combined financial information is subject to a number of assumptions, and does not take into account any synergies related to the Acquisition. Further, our actual results and financial condition after the Acquisition may differ materially and adversely from the unaudited pro forma combined financial data that is included in this prospectus. The unaudited pro forma combined financial information includes adjustments which are preliminary and may be revised after closing. There can be no assurance that such revisions will not result in material changes. The unaudited pro forma combined financial information is presented for illustrative purposes only and is not necessarily indicative of the results or financial position that would have occurred or that may occur in the future had the Acquisition and PIPE Investment been completed on the dates indicated, nor is it necessarily indicative of the future operating results or financial position

of Sema4 after the Acquisition. Future results may vary significantly from the results reflected because of various factors. For further discussion, see the section entitled "*Unaudited Pro Forma Combined Financial Information.*"

We have been the target of transaction related lawsuits as result of the Acquisition, which could result in substantial costs, and we have also assumed GeneDx's risks arising from various legal proceedings.

In connection with the Acquisition, two lawsuits were filed in federal courts against us and our directors. The complaints assert claims under Section 14(a) and Section 20(a) of the Exchange Act, and Rule 14a-19 promulgated thereunder, generally allege that the proxy statement we mailed to our stockholders in connection with the approval of certain matters related to the Acquisition misrepresented and/or omitted certain purportedly material information, and seek a variety of equitable and injunctive relief. In addition, five purported stockholders of our company have sent us demand letters making similar allegations about the proxy statement and demanding we provide supplemental disclosures. Although we believe that these allegations, claims and demands are without merit, we cannot predict the outcome of these legal proceedings, or whether additional stockholders will file lawsuits.

In addition, as of the Closing, we assumed GeneDx's risks arising from legal proceedings. Furthermore, following the Closing of the Acquisition, the strategies or motivations of a party or parties with respect to actual or potential litigation against us may change. We cannot predict with certainty the eventual outcome of GeneDx's pending or future legal proceedings and the ultimate outcome of such matters could be material to our results of operations, cash flows and financial condition.

Finally, the Acquisition may result in post-transaction disputes with OPKO or the other counterparties to the Merger Agreement and the Related Agreements regarding a number of matters, including any post-closing adjustments to the Cash Consideration, the occurrence or non-occurrence of any Milestone Event or payment of any Milestone Payment or any liabilities for which we or OPKO believes it was indemnified under the Merger Agreement.

We may seek to grow our business through additional acquisitions of complementary products or technologies, and the failure to manage these acquisitions, or the failure to integrate them with our existing business, could have a material adverse effect on our business, financial condition and operating results.

From time to time, we may consider additional opportunities to acquire other products or technologies that may enhance our product platform or technology, expand the breadth of our markets or customer base, or advance our business strategies. Potential acquisitions involve numerous risks, including:

- problems assimilating the acquired products or technologies;
- issues maintaining uniform standards, procedures, controls and policies;
- unanticipated costs associated with acquisitions;
- diversion of management's attention from our existing business;
- risks associated with entering new markets in which we have limited or no experience; and
- increased legal and accounting costs relating to the acquisitions or compliance with regulatory matters.

We do not know if we will be able to identify any other acquisitions we deem suitable, whether we will be able to successfully complete any acquisitions on favorable terms or at all, or whether we will be able to successfully integrate any acquired products or technologies. Our potential inability to integrate any acquired products or technologies effectively may adversely affect our business, operating results and financial condition.

Risks Related to Legal, Regulatory and Compliance

We may be subject to increased compliance risks as a result of our rapid growth, including our dependence on our sales, marketing and billing efforts.

We have had to expand our training and compliance efforts in line with our increasing reliance on personnel in our sales, marketing and billing functions, and our expansion of these functions in line with the overall growth in our business. We continue to monitor our personnel, but we have in the past experienced, and may in the future experience, situations in which employees fail to strictly adhere to our policies. In addition, sales and marketing activities in the healthcare space are subject to various rules and regulations. Moreover, our billing and marketing messaging can be complex and nuanced, and there may be errors or misunderstandings in our employees' communication of such messaging. Furthermore, we utilize text messaging, email, phone calls and other similar methods to communicate with patients who are existing or potential users of our products for various business purposes. These activities subject us to laws and regulations relating to communications with consumers, such as the CAN-SPAM Act and the Telephone Consumer Protection Act, violations of which could subject us to claims by consumers, who may seek actual or statutory damages, which could be material in the aggregate. As we continue to scale up our sales and marketing efforts in line with the growth in our business, in particular our increased pace of product launches as well as further geographical expansion, we face an increased need to continuously monitor and improve our policies, processes and procedures to maintain compliance with a growing number and variety of laws and regulations, including with respect to consumer marketing. To the extent that there is any violation, whether actual, perceived or alleged, of our policies or applicable laws and regulations, we may incur additional training and compliance costs, may receive inquiries from third-party payors or other third parties, or be held liable or otherwise responsible for such acts of non-compliance. Any of the foregoing could adversely affect our cash flow and financial condition.

If we use hazardous materials in a manner that causes injury, we could be liable for resulting damages.

Our activities currently require the use of hazardous chemicals and biological material. We cannot eliminate the risk of accidental contamination or injury to employees or third parties from the use, storage, handling or disposal of these materials. In the event of contamination or injury, we could be held liable for any resulting damages, and any liability could exceed our resources or any applicable insurance coverage we may have. Additionally, we are subject on an ongoing basis to federal, state and local laws and regulations governing the use, storage, handling and disposal of these materials and specified waste products. The cost of compliance with these laws and regulations may become significant, and our failure to comply may result in substantial fines or other consequences, and either could negatively affect our operating results.

We and our partners will have to maintain compliance with FDA requirements for research, products and services and failure to maintain compliance with FDA requirements may prevent or delay the marketing of our products and services.

Even if we have obtained marketing authorization, we will have to comply with the scope of that clearance, authorization or approval. Failure to secure and to comply with clearance, authorization or approval or the additional, extensive and ongoing post-marketing obligations imposed by the FDA or other regulatory requirements of other regulatory agencies could result in unanticipated compliance expenditures, a range of administrative enforcement actions, injunctions and criminal prosecution. FDA post-market obligations include, among other things, compliance with the FDA QSR, establishing registration and device listings, labeling requirements, reporting of certain adverse events and malfunctions, and reporting of certain recalls. In addition, circumstances may arise that cause us to recall equipment used in connection with our research, products and services. Such recalls could have an adverse effect on our ability to provide those products and services, which in turn would adversely affect our financial condition. our collaborators will also be required to maintain FDA clearance, authorization or approval for the products and services that we jointly develop. Any failure by us or our collaborators to maintain such clearance, authorization or approval could impair or cause a delay in our ability to profit from these collaborations.

Future changes in FDA enforcement discretion for LDTs could subject our operations to much more significant regulatory requirements.

We currently offer a LDT version of certain tests. The FDA has a policy of enforcement discretion with respect to LDTs whereby the FDA does not actively enforce its medical device regulatory requirements for such tests. However, in October 2014, the FDA issued two draft guidance documents stating that the FDA intended to modify its policy of enforcement discretion with respect to LDTs in a risk-based manner consistent with the existing classification of medical devices. Although the FDA halted finalization of the guidance in November 2016 to allow for further public discussion on an appropriate oversight approach to LDTs and to give Congressional authorizing committees the opportunity to develop a legislative solution, it is unclear if Congress or the FDA will modify the current approach to the regulation of LDTs in a way that would subject our current or future services marketed as LDTs to the enforcement of FDA regulatory requirements. The FDA Commissioner and the Director of the Center for Devices and Radiological Health ("CRDH") have expressed significant concerns regarding disparities between some LDTs and *in vitro* diagnostics that have been reviewed, cleared, authorized or approved by the FDA. If the FDA were to determine that certain tests offered by us as LDTs are not within the policy for LDTs for any reason, including new rules, policies or guidance, or due to changes in statute, our tests may become subject to extensive FDA requirements or our business may otherwise be adversely affected. If the FDA were to disagree with our LDT status or modify our approach to regulating LDTs, we could experience reduced revenue or increased costs, which could adversely affect our business, prospects, results of operations and financial condition. If required, the regulatory marketing authorization process required to bring our current or future LDTs into compliance may involve, among other things, successfully completing additional clinical validations and submitting to and obtaining clearance from the FDA for a premarket clearance (510(k)) submission or authorization for a *de novo* or approval of a PMA. Furthermore, pending legislative proposals, if passed, such as the VALID Act, could create new or different regulatory and compliance burdens on us and could have a negative effect on our ability to keep products on the market or develop new products, which could have a material effect on our business. In the event that the FDA requires marketing authorization of our LDTs in the future, the FDA may not ultimately grant any clearance, authorization or approval requested by us in a timely manner, or at all. In addition, if the FDA inspects our laboratory in relation to the marketing of any FDA-authorized test, any enforcement action the FDA takes might not be limited to the FDA-authorized test carried by us and could encompass our other testing services.

Recently, the FDA has also taken a more active role in certain diagnostic areas, including the oversight of pharmacogenetic ("PGx") and COVID-19 tests. In 2019, the FDA contacted several laboratories to demand changes to PGx test reports and marketing materials. In February 2020, the FDA issued a statement indicating that it continues to have concerns about the claims that certain clinical laboratories make with respect to their PGx tests, and published tables that list PGx associations for which the FDA has determined that the data support therapeutic management recommendations, a potential impact on safety or response, or a potential impact on pharmacokinetic properties only, respectively. To date, however, the FDA has not provided any general guidance on the types of claims or other characteristics that will cause a PGx test to fall outside FDA's enforcement discretion. As such, the extent to which the FDA will allow any laboratory to offer PGx tests in their current form without meeting FDA regulatory requirements for medical devices is unclear at this time.

For each product and service we are developing that may require FDA premarket review prior to marketing, the FDA may not grant clearance, authorization or premarket approval and failure to obtain necessary approvals for our future products and services would adversely affect our ability to grow our business.

Before we begin to manufacture, label and market additional clinical diagnostic products for commercial diagnostic use in the United States, we may be required to obtain either clearance, marketing authorization or approval from the FDA, unless an exemption applies or the FDA exercises its enforcement discretion and refrains from enforcing its requirements. For example, the FDA currently has a policy of refraining from enforcing its medical device requirements with respect to LDTs, which the FDA considers to be a type of *in vitro* diagnostic test that is designed, manufactured and used within a single properly licensed laboratory.

The process of obtaining PMA is much more rigorous, costly, lengthy and uncertain than the 510(k) clearance process. In the PMA approval process, the FDA must determine that a proposed device is safe and effective for its intended use based, in part, on extensive data, including, but not limited to, technical, preclinical, clinical trial,

manufacturing and labeling data. Conversely, in the 510(k) clearance process, the FDA must determine that a proposed device is "substantially equivalent" to a legally marketed "predicate" device in order for the product to be cleared for marketing. To be "substantially equivalent," the proposed device must have the same intended use as the predicate device, and either have the same technological characteristics or if it has different technological characteristics as the predicate device, the proposed device must be as safe and effective as, and not raise different questions of safety or effectiveness than, the predicate device. Clinical data is sometimes required to support substantial equivalence. For lower-risk devices that would otherwise automatically be placed into Class III, which require a PMA because no predicate device is available and the devices do not fall within an existing 510(k)-exempt classification, an applicant may submit a *de novo* request to down classify the device into Class II or Class I, which would not require a PMA. In the *de novo* process, the FDA must determine that general and special controls are sufficient to provide reasonable assurance of the safety and effectiveness of a device, which is low to moderate risk and has no predicate. In other words, the applicant must justify the "down-classification" to Class I or II for a new product type that would otherwise automatically be placed into Class III, but is lower risk. Clinical data may be required. For laboratory tests for which FDA clearance, authorization or approval is required, the FDA may also require data to support analytical and clinical validity.

The 510(k), *de novo* and PMA processes can be expensive and lengthy and require the payment of significant fees, unless an exemption applies. The FDA's 510(k) clearance pathway usually takes from three to nine months from submission, but it can take longer for a novel type of product. The FDA's *de novo* classification pathway usually takes from six to 12 months, but for many applicants can take up to 18 months or more.

The process of obtaining a PMA generally takes from one to three years, or even longer, from the time the PMA is submitted to the FDA until an approval is obtained. Any delay or failure to obtain necessary regulatory clearances, authorizations or approvals would have a material adverse effect on our business, financial condition and prospects.

The FDA can delay, limit or deny clearance, authorization or approval of a device for many reasons, including:

- the inability to demonstrate to the satisfaction of the FDA that the products are safe or effective for their intended uses;
- the disagreement of the FDA with the design, conduct or implementation of the clinical trials or the analysis or interpretation of data from preclinical studies, analytical studies or clinical trials;
- serious and unexpected adverse device effects experienced by participants in clinical trials;
- the data from preclinical studies, analytical studies and clinical trials may be insufficient to support clearance, authorization or approval, where required;
- the inability to demonstrate that the clinical and other benefits of the device outweigh the risks;
- an advisory committee, if convened by the FDA, may recommend against approval of a PMA or other application or may recommend that the FDA require, as a condition of approval, additional preclinical studies or clinical trials, limitations on approved labeling or distribution and use restrictions, or even if an advisory committee makes a favorable recommendation, the FDA may still not approve the product;
- the FDA may identify deficiencies in our marketing application;
- the FDA may identify deficiencies in our or our collaborators' manufacturing processes, facilities or analytical methods;
- the potential for policies or regulations of the FDA or applicable foreign regulatory bodies to change significantly in a manner rendering clinical data or regulatory filings insufficient for clearance, authorization or approval; and
- the FDA or foreign regulatory authorities may audit clinical trial data and conclude that the data is not sufficiently reliable to support a PMA.

There are numerous FDA personnel assigned to review different aspects of marketing submissions, which can present uncertainties based on their ability to exercise judgment and discretion during the review process. During the course of review, the FDA may request or require additional data and information, and the development and provision of these data and information may be time-consuming and expensive. The process of obtaining regulatory clearances, authorizations or approvals to market a medical device can be costly and time-consuming, and we may not be able to obtain these clearances, authorizations or approvals on a timely basis, or at all for our products in development. If we are unable to obtain clearance, authorization or approval for any products for which it plans to seek clearance, authorization or approval, our business may be harmed.

Modifications to our products with FDA marketing authorization may require new FDA clearances, authorizations or approvals, or may require it to cease marketing or recall the modified clinical diagnostic products or future clinical products until clearances are obtained.

Any modification to a 510(k)-cleared device that significantly affects its safety or effectiveness, or that constitutes a major change in its intended use, could require a new 510(k) clearance, a new *de novo* authorization or approval of a PMA. The FDA requires every manufacturer to make this determination in the first instance, but the FDA may review any manufacturer's decision. The FDA may not agree with our decisions regarding whether new clearances, authorizations or approvals are necessary.

For any product approved pursuant to a PMA, we would be required to seek supplemental approval for many types of modifications to the approved product. The FDA requires manufacturers in the first instance to determine whether a PMA supplement or other regulatory filing is needed or whether the change may be reported via the PMA Annual Report, but may disagree with a company's assessment.

If the FDA disagrees with our determination, which it may not review until we submit an annual report or the FDA conducts an inspection or other inquiry, and requires us to seek new clearances, authorizations or approvals for modifications to our previously cleared, authorized or approved clinical diagnostic products for which we have concluded new clearances, authorizations or approvals are unnecessary, we may be required to cease marketing or distribution of these clinical diagnostic products or to recall the modified products until we obtain clearance, authorization or approval. We may also be subject to enforcement action, including, among other things, significant regulatory fines or penalties.

In addition, for example, we plan to match our test reports for certain indications to identified mutations with FDA-approved targeted therapies or relevant clinical trials of targeted therapies. If a patient or physician who orders a test using one of our products is unable to obtain, or be reimbursed for the use of, targeted therapies because they are not indicated in the FDA-approved label for treatment, the patient is unable to enroll in an identified clinical trial due to the enrollment criteria of the trial, or some other reason, the ordering physician may conclude the test report does not contain actionable information. If physicians do not believe our products consistently generate actionable information about their patients' disease or condition, they may be less likely to use our products.

Furthermore, we cannot provide assurance that customers will always use these products in the manner in which they are intended. Any intentional or unintentional misuse of these products by customers could lead to substantial civil and criminal monetary and non-monetary penalties, and could result in significant legal and investigatory fees.

Our business is subject to various complex laws and regulations applicable to clinical diagnostics. We could be subject to significant fines and penalties if we or our partners fail to comply with these laws and regulations.

As a provider of clinical diagnostic products and services, we and our partners are subject to extensive and frequently changing federal, state, local and foreign laws and regulations governing various aspects of our business.

In particular, the clinical laboratory and healthcare industry is subject to significant governmental certification and licensing regulations, as well as federal, state and foreign laws regarding:

- test ordering and billing practices;
- marketing, sales and pricing practices;

- health information privacy and security, including HIPAA and comparable state laws;
- insurance;
- anti-markup legislation;
- fraud and abuse; and
- consumer protection.

We are also required to comply with FDA regulations, including with respect to our labeling and promotion activities. In addition, advertising and marketing of our clinical products are subject to regulation by the Federal Trade Commission ("FTC") and advertising of laboratory services is regulated by certain state laws. Violation of any FDA requirement could result in enforcement actions, such as seizures, injunctions, civil penalties and criminal prosecutions, and violation of any FTC or state law requirement could result in injunctions and other remedies, all of which could have a material adverse effect on our business. Most states also have similar regulatory and enforcement authority for devices. Additionally, most foreign countries have authorities comparable to the FDA and processes for obtaining marketing approvals. Obtaining and maintaining these approvals, and complying with all laws and regulations, may subject us to similar risks and delays as those we could experience under FDA, FTC and state regulation. We incur various costs in complying and overseeing compliance with these laws and regulations. The growth of our business and sales organization, the acquisition of additional businesses or products and services and our expansion outside of the U.S. may increase the potential of violating these laws, regulations or our internal policies and procedures.

Healthcare policy has been a subject of extensive discussion in the executive and legislative branches of the federal and many state governments and healthcare laws and regulations are subject to change. Development of the existing commercialization strategy for our tests and planned development of products in our pipeline has been based on existing healthcare policies. We cannot predict what additional changes, if any, will be proposed or adopted or the effect that such proposals or adoption may have on our business, financial condition and results of operations.

If we or our partners, fail to comply with these laws and regulations, it could incur significant fines and penalties and our reputation and prospects could suffer. Additionally, any such partners could be forced to cease offering our products and services in certain jurisdictions, which could materially disrupt our business. An adverse outcome could include us being required to pay treble damages, incur civil and criminal penalties, paying attorneys' fees, entering into a corporate integrity agreement, being excluded from participation in government healthcare programs, including Medicare and Medicaid, and other adverse actions that could materially and adversely affect our business, financial condition and results of operations.

Compliance with the HIPAA security, privacy and breach notification regulations may increase our costs.

The HIPAA privacy, security and breach notification regulations, including the expanded requirements under HITECH, establish comprehensive federal standards with respect to the uses and disclosures of protected health information ("PHI") by health plans, healthcare providers and healthcare clearinghouses, in addition to setting standards to protect the confidentiality, integrity and security of PHI. The regulations establish a complex regulatory framework on a variety of subjects, including:

- the circumstances under which uses and disclosures of PHI are permitted or required without a specific authorization by the patient, including but not limited to treatment purposes, activities to obtain payments for our services, and our healthcare operations activities;
- a patient's rights to access, amend and receive an accounting of certain disclosures of PHI;
- requirements to notify individuals if there is a breach of their PHI;
- the contents of notices of privacy practices for PHI;

- administrative, technical and physical safeguards required of entities that use or receive PHI;
- deidentification of PHI; and
- the protection of computing systems maintaining electronic PHI.

We have implemented practices intended to meet the requirements of the HIPAA privacy, security and breach notification regulations, as required by law. We are required to comply with federal privacy, security and breach notification regulations as well as varying state privacy, security and breach notification laws and regulations, which may be more stringent than federal HIPAA requirements. In addition, for healthcare data transfers from other countries relating to citizens and/or residents of those countries, we must comply with the laws of those countries. The federal privacy regulations under HIPAA restrict our ability to use or disclose patient identifiable data, without patient authorization, for purposes other than payment, treatment, healthcare operations and certain other specified disclosures such as public health and governmental oversight of the healthcare industry.

HIPAA provides for significant fines and other penalties for wrongful use or disclosure of PHI, including potential civil and criminal fines and penalties. Computer networks are always vulnerable to breach and unauthorized persons may in the future be able to exploit weaknesses in the security systems of our computer networks and gain access to PHI. Additionally, we share PHI with third-parties who are legally obligated to safeguard and maintain the confidentiality of PHI. Unauthorized persons may be able to gain access to PHI stored in such third-parties computer networks. Any wrongful use or disclosure of PHI by us or such third-parties, including disclosure due to data theft or unauthorized access to us or our third-parties computer networks, could subject it to fines or penalties that could adversely affect our business and results of operations. Although the HIPAA statute and regulations do not expressly provide for a private right of damages, we could also be liable for damages under state laws to private parties for the wrongful use or disclosure of confidential health information or other private personal information.

Some of our activities may subject it to risks under federal and state laws prohibiting 'kickbacks' and false or fraudulent claims.

In addition to FDA marketing and promotion restrictions, several other types of state and federal healthcare fraud and abuse laws have been applied in recent years to restrict certain marketing practices in the healthcare product and service industry and to regulate billing practices and financial relationships with healthcare providers, hospitals and other healthcare providers. These laws include a federal law commonly known as the Medicare/Medicaid anti-kickback law, and several similar state laws, which prohibit payments intended to induce healthcare providers or others either to refer patients or to acquire or arrange for or recommend the acquisition of healthcare products or services. While the federal law applies only to referrals, products or services for which payment may be made by a federal healthcare program, state laws often apply regardless of whether federal funds may be involved. These laws constrain the sales, marketing and other promotional activities of manufacturers of medical devices and providers of laboratory services by limiting the kinds of financial arrangements, including sales programs, that may be used with hospitals, healthcare providers, laboratories and other potential purchasers or prescribers of medical devices and laboratory services. Other federal and state laws generally prohibit individuals or entities from knowingly presenting, or causing to be presented, claims for payment from Medicare, Medicaid, or other third-party payors that are false or fraudulent, or are for items or services that were not provided as claimed.

In 2018, Congress passed the Eliminating Kickbacks in Recovery Act ("EKRA") as part of the Substance Use-Disorder Prevention that Promotes Opioid Recovery and Treatment for Patients and Communities Act. Similar to the Medicare/Medicaid anti-kickback law, EKRA imposes criminal penalties for knowing or willful payment or offer, or solicitation or receipt, of any remuneration, whether directly or indirectly, overtly or covertly, in cash or in kind, in exchange for the referral or inducement of laboratory testing (among other healthcare services) unless a specific exception applies. However, unlike the Medicare/Medicaid anti-kickback law, EKRA is not limited to services covered by federal or state healthcare programs but applies more broadly to services covered by "healthcare benefit programs," including commercial insurers. As currently drafted, EKRA potentially expands the universe of arrangements that could be subject to government enforcement under federal fraud and abuse laws. In addition, while the Medicare/Medicaid anti-kickback law includes certain exceptions that are widely relied upon in the

healthcare industry, including compensating employees on a percentage basis, not all of those same exceptions apply under EKRA. EKRA expressly does not protect employee compensation that varies by the number of individuals referred to a laboratory, the number of tests performed by a laboratory, or the amount billed to or received from a health benefit program from individuals referred to a laboratory. Because EKRA is a relatively new law, there is no agency guidance and only one court has addressed the application of EKRA. That case was decided by the United States District Court of Hawaii and involved a lawsuit between a laboratory and an employee. The Court ruled that the commission-based compensation provisions of the laboratory employee's contract did not violate EKRA. Although this may be a favorable interpretation of EKRA for laboratory compensation structures, we cannot be assured that courts in our jurisdiction will reach the same conclusion or that the decision will not be overturned if there is an appeal. Because EKRA is a relatively new law, there is no agency guidance or court precedent to indicate how and to what extent it will be applied and enforced. We cannot assure you that our relationships with healthcare providers, hospitals, customers, our own sales representatives, or any other party will not be subject to scrutiny or will survive regulatory challenge under EKRA.

Additionally, to avoid liability under federal false claims laws, we or our partners must carefully and accurately code claims for reimbursement, proactively monitor the accuracy and appropriateness of claims and payments received, diligently investigate any credible information indicating that we or our partners may have received an overpayment, and promptly return any overpayments. Medicare payments are subject to audit, including through the Comprehensive Error Rate Testing ("CERT") program, and payments may be recouped by CMS if it is determined that they were improperly made. Currently, a small percentage of our revenues are generated by payments from Medicare. The federal anti-kickback statute and certain state-level false claims laws prescribe civil and criminal penalties (including fines) for noncompliance that can be substantial. In addition, various states have enacted false claim laws analogous to the federal laws that apply where a claim is submitted to any third-party payor and not only a governmental payer program. While we continually strive to comply with these complex requirements, interpretations of the applicability of these laws to marketing and billing practices are constantly evolving and even an unsuccessful challenge could cause adverse publicity and be costly to respond to, and thus could harm our business and prospects. Our failure to comply with applicable laws could result in various adverse consequences that could have a material adverse effect upon our business, including the exclusion of our products and services from government programs and the imposition of civil or criminal sanctions.

Our business could be harmed by the loss, suspension or other restriction on a license, certification or accreditation, or by the imposition of a fine or penalties, under CLIA, our implementing regulations or other state, federal and foreign laws and regulations affecting licensure or certification, or by future changes in these laws or regulations.

Federal law requires virtually all clinical laboratories to comply with CLIA, which generally involves becoming certified by the federal and state government for the testing that will be performed and complying with various operational, personnel, facilities administration, quality and proficiency testing requirements intended to ensure that testing services are accurate and reliable. CLIA certification is also a prerequisite to be eligible to bill state and federal healthcare programs, as well as many private third-party payors, for laboratory research and clinical diagnostic testing services. For example, as a condition of our CLIA certification, a laboratory may be subject to survey and inspection every other year, additional random inspections and surprise inspections based on complaints received by state or federal regulators. The biennial survey and inspection is conducted by CMS, a CMS agent or, if the laboratory holds a CLIA certificate of accreditation, a CMS-approved accreditation organization, such as CAP. Sanctions for failure to comply with CLIA requirements, including proficiency testing violations, may include suspension, revocation or limitation of a laboratory's CLIA certificate, which is necessary to conduct business, as well as the imposition of significant civil, administrative or criminal sanctions against the lab, its owners and other individuals. In addition, we are subject to regulation under certain state laws and regulations governing laboratory licensure. Some states have enacted laboratory licensure and compliance laws that are more stringent than CLIA. Changes in state licensure laws that affect our ability to offer and provide research and diagnostic products and services across state or foreign country lines could materially and adversely affect our business. In addition, state and foreign requirements for laboratory certification may be costly or difficult to meet and could affect our ability to receive specimens from certain states or foreign countries.

Any sanction imposed under CLIA, its implementing regulations or state or foreign laws or regulations governing licensure, or our failure to renew a CLIA certificate, a state or foreign license or accreditation, could have a material adverse effect on our business.

We may never obtain approval in the EU or in any other foreign country for any of our products or services and, even if we do, we or our partners and collaborators may never be able to commercialize them in another jurisdiction, which would limit our ability to realize their full market potential.

In order to eventually market any of our current or future products and services in any particular foreign jurisdiction, we must establish compliance with numerous and varying regulatory requirements on a jurisdiction-by-jurisdiction basis regarding quality, safety, performance, privacy and efficacy. In addition, clinical trials or clinical investigations conducted in one country may not be accepted by regulatory authorities in other countries, and regulatory clearance, authorization or approval in one country does not guarantee regulatory clearance, authorization or approval in any other country. Approval processes vary among countries and can involve additional product testing and validation and additional administrative review periods.

Seeking foreign regulatory clearance, authorization or approval could result in difficulties and costs for us and our collaborators and require additional preclinical studies, clinical trials or clinical investigations which could be costly and time-consuming. Regulatory requirements and ethical approval obligations can vary widely from country to country and could delay or prevent the introduction of our products and services in those countries. The foreign regulatory clearance, authorization or approval process involves all of the risks and uncertainties associated with FDA clearance, authorization or approval. We currently have limited experience in obtaining regulatory clearance, authorization or approval in international markets. If we or our collaborators fail to comply with regulatory requirements in international markets or to obtain and maintain required regulatory clearances, authorizations or approvals in international markets, or if those approvals are delayed, our target market will be reduced and our ability to realize the full market potential of our products and services will be unrealized.

Complying with numerous statutes and regulations pertaining to our business is an expensive and time-consuming process, and any failure to comply could result in substantial penalties.

Our operations are subject to other extensive federal, state, local and foreign laws and regulations, all of which are subject to change. These laws and regulations currently include, among others:

- HIPAA, which establishes comprehensive federal standards with respect to the privacy and security of protected health information and requirements for the use of certain standardized electronic transactions;
- amendments to HIPAA under HITECH, which strengthen and expand HIPAA privacy and security compliance requirements, increase penalties for violators and expand vicarious liability, extend enforcement authority to state attorneys general, and impose requirements for breach notification;
- the General Data Protection Regulation (“GPDR”), which imposes strict privacy and security requirements on controllers and processors of European personal data, including enhanced protections for “special categories” of personal data, including sensitive information such as health and genetic information of data subjects;
- the CCPA, which, among other things, regulates how subject businesses may collect, use, disclose and/or sell the personal information of consumers who reside in California, affords rights to consumers that they may exercise against businesses that collect their information, and requires implementation of reasonable security measures to safeguard personal information of California consumers;
- the federal Anti-Kickback Statute, which prohibits knowingly and willfully offering, paying, soliciting or receiving remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or in return for the referral of an individual, for the furnishing of or arrangement for the furnishing of any item or service for which payment may be made in whole or in part by a federal healthcare program, or the purchasing, leasing, ordering, arranging for, or recommend purchasing, leasing or ordering, any good,

facility, item or service for which payment may be made, in whole or in part, under a federal healthcare program;

- EKRA, which prohibits payments for referrals to recovery homes, clinical treatment facilities, and laboratories and reaches beyond federal health care programs, to include private insurance;
- the federal physician self-referral law, known as the Stark Law, which prohibits a physician from making a referral to an entity for certain designated health services covered by the Medicare program, including laboratory and pathology services, if the physician or an immediate family member has a financial relationship with the entity unless an exception applies, and prohibits an entity from billing for designated health services furnished pursuant to a prohibited referral;
- the federal false claims law, which imposes liability on any person or entity that, among other things, knowingly presents, or causes to be presented, a false or fraudulent claim for payment to the federal government;
- the federal Civil Monetary Penalties Law, which prohibits, among other things, the offering or transfer of remuneration to a Medicare or state healthcare program beneficiary if the person knows or should know it is likely to influence the beneficiary's selection of a particular provider, practitioner or supplier of services reimbursable by Medicare or a state healthcare program, unless an exception applies;
- the HIPAA fraud and abuse provisions, which create new federal criminal statutes that prohibit, among other things, defrauding health care benefit programs, willfully obstructing a criminal investigation of a healthcare offense and falsifying or concealing a material fact or making any materially false statements in connection with the payment for healthcare benefits, items or services;
- other federal and state fraud and abuse laws, such as anti-kickback laws, prohibitions on self-referral, fee-splitting restrictions, insurance fraud laws, anti-markup laws, prohibitions on the provision of tests at no or discounted cost to induce physician or patient adoption, and false claims acts, which may extend to services reimbursable by any third-party payer, including private insurers;
- the 21st Century Cures Act information blocking prohibition, which prohibits covered actors from engaging in certain practices that are likely to interfere with the access, exchange, or use of electronic health information;
- the Physician Payments Sunshine Act and similar state laws that require reporting of certain payments and other transfers of value made by applicable manufacturers, directly or indirectly, to or on behalf of covered recipients including physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals as well as ownership and investment interests held by physicians and their immediate family members.
- Beginning in 2022, applicable manufacturers also will be required to report such information regarding its relationships with physician assistants, nurse practitioners, clinical nurse specialists, certified registered nurse anesthetists and certified nurse midwives during the previous year;
- state laws that limit or prohibit the provision of certain payments and other transfers of value to certain covered healthcare providers;
- the prohibition on reassignment of Medicare claims, which, subject to certain exceptions, precludes the reassignment of Medicare claims to any other party;
- state laws that prohibit other specified practices, such as billing clinicians for testing that they order; waiving coinsurance, copayments, deductibles and other amounts owed by patients; billing a state Medicaid program at a price that is higher than what is charged to one or more other payers;
- similar foreign laws and regulations that may apply to us in the countries in which we operate or may operate in the future; and

- laws that relate to maintaining accurate information and control over activities that may fall within the purview of the U.S. Foreign Corrupt Practices Act, its books and records provisions, or anti-bribery provisions.

We have adopted policies and procedures designed to comply with these laws and regulations. In the ordinary course of our business, we conduct internal reviews of our compliance with these laws. Our compliance may also be subject to governmental review. The growth of our business and our expansion outside of the United States may increase the potential of violating these laws or our internal policies and procedures. The risk of us being found in violation of these or other laws and regulations is further increased by the fact that many have not been fully interpreted by the regulatory authorities or the courts, and their provisions are open to a variety of interpretations. Any action brought against us for violation of these or other laws or regulations, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business. If our operations are found to be in violation of any of these laws and regulations, we may be subject to any applicable penalty associated with the violation, including significant administrative, civil and criminal penalties, damages, fines, imprisonment, exclusion from participation in Federal healthcare programs, refunding of payments received by us and curtailment or cessation of our operations, which may impact existing contracts with key payors, collaborators, health systems, and commercial partners. Any of the foregoing consequences could seriously harm our business and our financial results.

We face uncertainty related to healthcare reform, pricing, coverage and reimbursement, which could reduce our revenue.

Healthcare reform laws, including the Patient Protection and Affordable Care Act ("ACA") and the Protecting Access to Medicare Act of 2014 ("PAMA"), are significantly affecting the U.S. healthcare and medical services industry. Existing legislation, and possible future legal and regulatory changes, including potential repeal or modification of the ACA, elimination of penalties regarding the individual mandate for coverage, or approval of health plans that allow lower levels of coverage for preventive services, could materially change the structure and finances of the health insurance system and the methodology for reimbursing medical services, drugs and devices, including our current and future products and services. The ACA has also been the subject of various legal challenges and in December 2018, a federal district court in Texas found that the ACA's "individual mandate" was unconstitutional such that the whole of the ACA is invalid. The decision was appealed, and in December 2019, the Fifth Circuit Court of Appeals affirmed certain portions of the district court's decision but remanded to the district court to determine if any portions of the ACA may still be valid. If the plaintiffs in this case, or in any other case challenging the ACA, are ultimately successful, insurance coverage for our tests could be materially and adversely affected. Any change in reimbursement policy could result in a change in patient cost-sharing, which could adversely affect a provider's willingness to prescribe and patient's willingness and ability to use our tests and any other product or service we may develop. Healthcare reforms, which may intend to reduce healthcare costs, may have the effect of discouraging third-party payors from covering certain kinds of medical products and services, particularly newly developed technologies, or other products or tests we may develop in the future. We cannot predict whether future healthcare reform initiatives will be implemented at the federal or state level or the effect any such future legislation or regulation will have on it. The taxes imposed by new legislation, cost reduction measures and the expansion in the government's role in the U.S. healthcare industry may result in decreased profits to us, which may adversely affect our business, financial condition and results of operations.

PAMA presents significant uncertainty for future CMS reimbursement rates for our tests. Because Medicare currently covers a significant number of patients, any reduction in the CMS reimbursement rate for our tests would negatively affect our revenues and our business prospects. Under PAMA, CMS reimbursement rates for clinical diagnostic laboratory tests are updated every three years, or annually for clinical laboratory tests that are considered "advanced diagnostic laboratory tests." The CMS reimbursement rates for clinical diagnostic laboratory tests are updated based on the volume-weighted median of private payer rates for each clinical diagnostic laboratory test based on data submitted by certain applicable laboratories. Further, laboratories that fail to report or erroneously report required payment information may be subject to substantial civil money penalties. There can be no assurance under PAMA that adequate CMS reimbursement rates will continue to be assigned to our tests. Congress could modify or repeal PAMA in the future or CMS could modify regulations under PAMA, and any such action could have the effect of reducing the CMS reimbursement rate for our tests. Further, it is possible that Medicare or other

federal payers that provide reimbursement for our tests may suspend, revoke or discontinue coverage at any time, may require co-payments from patients, or may reduce the reimbursement rates payable to us. Any such action could have a negative impact on our revenues.

Coverage of our screening products that we may develop may also depend, in whole or in part, on whether payers determine, or courts and/or regulatory authorities determine, coverage is required under applicable federal or state laws mandating coverage of certain cancer screening services.

Several states have laws mandating coverage for preventive services, such as certain cancer screening services, applicable to certain health insurers. However, not all of these laws apply to our current tests and not all of these laws presently mandate coverage for patients within the certain age ranges. We and payers may disagree about how these mandates apply to our tests and we may find the mandates difficult to enforce. Further, if the ACA is repealed, replaced or overturned, or even if it is not, states may decide to modify their laws, which may include repeal of those coverage mandates that we believe currently apply to our oncology tests.

Outside of the U.S., we would largely depend on public or government-controlled payers for coverage of our oncology tests. As compared to many more routine diagnostic tests, our oncology tests are more complicated, expensive and are performed in a central, specialized lab. In order to accommodate the unique characteristics of our diagnostic products, public payers in certain non-U.S. markets have designed reimbursement frameworks specifically for each test type. These payers could decide to modify or discontinue these special frameworks, potentially leading to lower reimbursement prices or the impossibility of providing the test in the market. These changes could also impose additional administrative burdens on us, if it were to ever sell our tests in foreign jurisdictions, including complex public tendering procedures, or on ordering physicians, which could adversely affect the number of payers covering the test or the number of orders placed. Public payers could condition reimbursement of our tests upon performance of our tests locally or, even in laboratories owned or operated by the payers. Any such change would adversely affect our ability to continue to serve those patients through our labs. We may develop future oncologic tests that could be performed locally by laboratory partners and in hospitals around the world, however those developments efforts may be unsuccessful and any such tests that we may develop may not be approved by regulators or accepted by payers or patients.

Product and professional liability suits against us could result in expensive and time-consuming litigation, payment of substantial damages and increases in our insurance rates.

The sale and use of our solutions, products and services could lead to product or professional liability claims, including class action lawsuits. We may also be subject to liability for errors in the test results including health information it provides to healthcare providers or patients or for a misunderstanding of, or inappropriate reliance upon, the information it provides. Claims could also arise out of clinical studies we may conduct or any of our other activities. A product or professional liability claim could result in substantial damages, be costly and time consuming to defend, and cause material harm to our business, reputation or financial condition. We cannot assure you that our liability insurance would protect our assets from the financial impact of defending a product or professional liability claim. Any claim brought against us, with or without merit, could increase our liability insurance rates or prevent it from securing insurance coverage in the future.

Errors, defects, or mistakes in our products or services, and operations could harm our reputation, decrease market acceptance of our products or services.

We are creating new products and services, many of which are initially based on largely untested technologies. As all of our products and services progress, we or others may determine that it made product or service-level scientific or technological mistakes. The diagnostic and testing processes utilize a number of complex and sophisticated molecular, biochemical, informatics, and mechanical processes, many of which are highly sensitive to external factors. An operational or technological failure in one of these complex processes or fluctuations in external factors may result in less efficient processing or variation between testing runs. Refinements to our processes may initially result in unanticipated issues that reduce the efficiency or increase variability. In particular, sequencing, which is a key component of these processes, could be inefficient with higher than expected variability thereby

increasing total sequencing costs and reducing the number of samples we can process in a given time period. Therefore, inefficient or variable processes can cause variability in our operating results and damage our reputation.

In addition, our laboratory operations could result in any number of errors or defects. Our quality assurance system may fail to prevent it from inadvertent problems with samples, sample quality, lab processes including sequencing, software, data upload or analysis, raw materials, reagent manufacturing, assay quality or design, or other components or processes. In addition, our assays may have quality or design errors, and we may have inadequate procedures or instrumentation to process samples, assemble our proprietary primer mixes and commercial materials, upload and analyze data, or otherwise conduct our laboratory operations. If we provide products or services with undiscovered errors to our customers, our clinical diagnostics may falsely indicate a patient has a disease or genetic variant, fail to assess a patient's risk of getting a disease or having a child with a disease, or fail to detect disease or variant in a patient who requires or could benefit from treatment or intervention. We believe our customers are likely to be particularly sensitive to product and service defects, errors and delays, including if our products and services fail to indicate the presence of residual disease with high accuracy from clinical specimens or if we fail to list or inaccurately indicate the presence or absence of disease in our test report or analysis. In drug discovery, such errors may interfere with our collaborators' clinical studies or result in adverse safety or efficacy profiles for their products in development. This may harm our customers' businesses and may cause it to incur significant costs, divert the attention of key personnel, encourage regulatory enforcement action against it, create a significant customer relations problem for us and cause our reputation to suffer. We may also be subject to warranty and liability claims for damages related to errors or defects in our products or services. Any of these developments could harm our business and operating results.

We are subject to increasingly complex taxation rules and practices, which may affect how we conduct our business and our results of operations.

As our business grows, we are required to comply with increasingly complex taxation rules and practices. We are subject to tax in multiple U.S. tax jurisdictions and may be subject to foreign tax jurisdictions in the future. The development of our tax strategies requires additional expertise and may impact how we conduct our business. Our future effective tax rates could be unfavorably affected by changes in, or interpretations of, tax rules and regulations in the jurisdictions in which we do business or by changes in the valuation of our deferred tax assets and liabilities. Furthermore, we provide for certain tax liabilities that involve significant judgment. We are and may be subject to the examination of our tax returns by federal, state and foreign tax authorities. If our tax strategies are ineffective or it is not in compliance with domestic and international tax laws, as applicable, our financial position, operating results and cash flows could be adversely affected.

Risks Related to Our Intellectual Property and Trade Secrets

Our inability to effectively protect our proprietary products, processes, and technologies, including the confidentiality of our trade secrets, could harm our competitive position.

We currently rely upon trade secret protection and copyright, as well as non-disclosure agreements and invention assignment agreements with our employees, consultants and third parties, and to a limited extent patent protection, to protect our confidential and proprietary information. Although our competitors have utilized and are expected to continue utilizing similar methods and have aggregated and are expected to continue to aggregate similar databases of genetic testing information, our success will depend upon our ability to develop proprietary methods and databases and to defend any advantages afforded by our methods and databases relative to our competitors. If we do not protect our intellectual property adequately, competitors may be able to use our methods and databases and thereby erode any competitive advantages we may have.

We will be able to protect our proprietary rights from unauthorized use by third parties only to the extent that our proprietary technologies are covered by valid and enforceable patents or are effectively maintained as trade secrets. In this regard, we have applied, and we intend to continue applying, for patents covering such aspects of our technologies as it deems appropriate. However, we expect that potential patent coverage we may obtain will not be sufficient to prevent substantial competition. In this regard, we believe it is probable that others will independently develop similar or alternative technologies or design around those technologies for which we may obtain patent

protection. In addition, any patent applications we file may be challenged and may not result in issued patents or may be invalidated or narrowed in scope after they are issued. Questions as to inventorship or ownership may also arise. Any finding that our patents or applications are unenforceable could harm our ability to prevent others from practicing the related technology, and a finding that others have inventorship or ownership rights to our patents and applications could require us to obtain certain rights to practice related technologies, which may not be available on favorable terms, if at all. If we initiate lawsuits to protect or enforce our patents, or litigate against third-party claims, which would be expensive, and we lose, we may lose some of our intellectual property rights. Furthermore, these lawsuits may divert the attention of our management and technical personnel.

We expect to rely substantially upon trade secrets and proprietary know-how protection for our confidential and proprietary information, and we have taken security measures to protect this information. These measures, however, may not provide adequate protection for our trade secrets, know-how or other confidential information. Among other things, we seek to protect our trade secrets and confidential information by entering into confidentiality agreements with employees and consultants. There can be no assurance that any confidentiality agreements that we have with our employees and consultants will provide meaningful protection for our trade secrets and confidential information or will provide adequate remedies in the event of unauthorized use or disclosure of such information. Accordingly, there also can be no assurance that our trade secrets will not otherwise become known or be independently developed by competitors. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret can be difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, trade secrets may be independently developed by others in a manner that could prevent legal recourse by us. If any of our confidential or proprietary information, such as our trade secrets, were to be disclosed or misappropriated, or if any such information was independently developed by a competitor, our competitive position could be harmed.

Any inability to effectively protect our proprietary technologies under certain jurisdictions and legal regimes could harm our competitive position.

Our success and ability to compete in certain jurisdictions and under certain legal regimes depend to a large extent on our ability to develop proprietary products and technologies and to maintain adequate protection of our intellectual property in the United States and other countries; this becomes increasingly important as we expand our operations and enter into strategic collaborations with partners to develop and commercialize products. The laws of some foreign countries do not protect proprietary rights to the same extent as the laws of the United States, and we may encounter difficulties in establishing and enforcing its proprietary rights outside of the United States. In addition, the proprietary positions of companies developing and commercializing tools for molecular diagnostics, including our own, generally are uncertain and involve complex legal and factual questions. This uncertainty may materially affect our ability to defend or obtain patents or to address the patents and patent applications owned or controlled by our collaborators and licensors.

Any of these factors could adversely affect our ability to obtain commercially relevant or competitively advantageous patent protection for our products.

If patent regulations or standards are modified, such changes could have a negative impact on our business.

From time to time, the U.S. Supreme Court, other federal courts, the U.S. Congress or the USPTO may change the standards of patentability and validity of patents within the cancer screening and diagnostics space, and any such changes could have a negative impact on our business.

There have been several cases involving “gene patents” and diagnostic claims that have been considered by the U.S. Supreme Court. In March 2012, the Supreme Court *in Mayo Collaborative Services v. Prometheus Laboratories, Inc,* found a patented diagnostic method claim unpatentable because the relationship between a metabolite concentration and optimized dosage was a patent-ineligible “law of nature.” In June 2013, the Supreme Court ruled in *ACLU v. Myriad Genetics, Inc*, that an isolated genomic DNA sequence is not patent eligible while cDNA is eligible. The *Prometheus and Myriad* decisions, as well as subsequent case law, affect the legal concept of subject matter eligibility by seemingly narrowing the scope of the statute defining patentable inventions.

In December 2014 and again in 2019, the USPTO published revised guidelines for patent examiners to apply when examining process claims for patent eligibility in view of several recent Supreme Court decisions, including

Mayo, Association for Molecular Pathology v. Myriad Genetics, Inc., and *Alice Corporation Pty. Ltd. v. CLS Bank International*, and others. The guidance indicates that claims directed to a law of nature, a natural phenomenon, or an abstract idea that do not meet the eligibility requirements should be rejected as non-statutory, patent ineligible subject matter. While these guidelines may be subject to review and modification by the USPTO over time, we cannot assure you that our intellectual property strategy or patent portfolio will not be negatively impacted by the decisions described above, rulings in other cases or changes in guidance or procedures issued by the USPTO.

Additional substantive changes to patent law, whether new or associated with the America Invents Act—which substantially revised the U.S. patent system—may affect our ability to obtain, enforce or defend our patents. Accordingly, it is not clear what, if any, impact these substantive changes will ultimately have on the cost of prosecuting our patent applications, our ability to obtain patents based on our discoveries and our ability to enforce or defend our issued patents, all of which could have a material adverse effect on our business.

If we are not able to adequately protect our trade secrets and other proprietary information, including the databases we manage and to which we have access, the value of our technology and products could be significantly diminished.

We rely on trade secret and proprietary know-how protection for our confidential and proprietary information and have taken security measures to protect this information. These measures, however, may not provide adequate protection. For example, we have a policy of requiring our consultants, advisors and collaborators, including, for example, our strategic collaborators with whom we seek to develop and commercialize products, to enter into confidentiality agreements and our employees to enter into invention, non-disclosure and in certain cases non-compete agreements. However, breaches of our physical or electronic security systems, or breaches caused by our employees who failing to abide by their confidentiality obligations during or upon termination of their employment with us, could compromise these protection efforts. Any action we take to enforce our rights may be time-consuming, expensive, and possibly unsuccessful. Even if successful, the resulting remedy may not adequately compensate us for the harm caused by the breach. These risks are heightened in countries where laws or law enforcement practices may not protect proprietary rights as fully as in the United States or Europe. Any unauthorized use or disclosure of, or access to, our trade secrets, know-how or other proprietary information, whether accidentally or through willful misconduct, could have a material adverse effect on our programs and our strategy, and on our ability to compete effectively.

If our trademarks and trade names are not adequately protected, we may not be able to build name recognition in our markets of interest, and our business may be adversely affected.

Failure to maintain our trademark registrations, or to obtain new trademark registrations in the future, could limit our ability to protect our trademarks and impede our marketing efforts in the countries in which we operate. We may not be able to protect our rights to trademarks and trade names which we may need to build name recognition with potential partners or customers in our markets of interest. As a means to enforce our trademark rights and prevent infringement, we may be required to file trademark claims against third parties or initiate trademark opposition proceedings. This can be expensive and time-consuming, and possibly unsuccessful. our registered or unregistered trademarks or trade names may be challenged, infringed, circumvented, declared generic or determined to infringe on other marks.

Our pending trademark applications in the United States and in other foreign jurisdictions where we may file may not be successful. Even if these applications result in registered trademarks, third parties may challenge these trademarks in the future. Over the long term, if we are unable to establish name recognition based on our trademarks and trade names, then we may not be able to compete effectively, and our business may be adversely affected.

Litigation or other proceedings resulting from either third-party claims of patent infringement, or asserting infringement by third parties of our technology, could be costly, time-consuming, and could limit our ability to commercialize our products or services.

Our success depends in part on our non-infringement of the patents or intellectual property rights of third parties, and our ability to successfully prevent third parties from infringing our intellectual property. We operate in a crowded technology area in which there has been substantial litigation and other proceedings regarding patent and

other intellectual property rights in the genetic diagnostics industry. Third parties, including our competitors, have asserted and may in the future assert that we are infringing their intellectual property rights. We may also become subject to and/or initiate future intellectual property litigation as our product portfolio and the level of competition in our industry grow.

Because the U.S. Patent & Trademark Office ("USPTO") maintains patent applications in secrecy until a patent application publishes or the patent is issued, we have no way of knowing if others may have filed patent applications covering technologies used by it or our partners. Additionally, there may be third-party patents, patent applications and other intellectual property relevant to our technologies that may block or compete with our technologies. From time-to-time we have received correspondence from third parties alleging to hold intellectual property rights that could block our development or commercialization of products. While none of these inquiries to date have had any material effect on it, we may receive inquiries in the future that could have a material effect on our business. Even if third-party claims are without merit, defending a lawsuit may result in substantial expense to us and may divert the attention of management and key personnel. In addition, we cannot provide assurance that it would prevail in any such suits to the extent necessary to conduct our business according to our strategic plan or that the damages or other remedies, if any, awarded against it would not be substantial. Claims of intellectual property infringement may require that we, or our strategic partners, enter into unsustainably high royalty or license agreements with third parties that may only be available on unacceptable terms, if at all. In addition, we could experience delays in product introductions or sales growth while we attempt to develop non-infringing alternatives. These claims could also result in injunctions against the further development and commercial sale of services or products containing our technologies, which would have a material adverse effect on our business, financial condition and results of operations.

Further, patents and patent applications owned by us may become the subject of interference proceedings in the USPTO to determine priority of invention, which could result in substantial cost to us as well as a possible adverse decision as to the priority of invention of the patent or patent application involved. An adverse decision in an interference proceeding may result in the loss of rights under a patent or patent application subject to such a proceeding. We cannot predict whether, or offer any assurance that, the patent infringement claims may initiate in the future will be successful. We are and may become subject to counterclaims by patent infringement defendants. Our patents may be declared invalid or unenforceable, or narrowed in scope. Even if we prevail in an infringement action, we cannot assure you that it would be adequately compensated for the harm to our business. If we are unable to enjoin third-party infringement, our revenues may be adversely impacted and we may lose market share; and such third-party product may continue to exist in the market, but fail to meet our regulatory or safety standards, thereby causing irreparable harm to our reputation as a provider of quality products, which in turn could result in loss of market share and have a material adverse effect on our business, financial condition and our results of operations.

In addition, our agreements with some of our customers, suppliers, and other entities with whom we do business require us to defend or indemnify these parties to the extent they become involved in patent infringement claims, including the types of claims described in this risk factor. We have agreed, and may in the future agree, to defend or indemnify third parties if we determine it to be in the best interests of our business relationships. If we are required or agree to defend or indemnify third parties in connection with any infringement claims, we could incur significant costs and expenses that could adversely affect our business, financial condition and results of operations.

Our use of open-source software could subject our business to possible litigation or cause us to subject our platform to unwanted open-source license conditions that could negatively impact our sales.

A limited but meaningful portion of our platforms and products incorporate open-source software, and we will incorporate open-source software into other offerings or products in the future. Such open-source software is generally licensed by its authors or other third parties under open-source licenses. There is little legal precedent governing the interpretation of certain terms of these licenses, and therefore the potential impact of these terms on our business is unknown and may result in unanticipated obligations regarding our products and technologies. If an author or other third party that distributes such open-source software were to allege that we had not complied with the conditions of one or more of these licenses, we could be required to incur significant legal expenses defending against such allegations. In addition, if we combine our proprietary software with open-source software in a certain manner, under some open-source licenses, we could be required to release the source code of our proprietary

software, which could substantially help our competitors develop products that are similar to or better than our products.

We rely on strategic collaborative and licensing arrangements with third parties to develop critical intellectual property. We may not be able to successfully establish and maintain such intellectual property.

The development and commercialization of our products and services rely, directly or indirectly, upon strategic collaborations and licensing agreements with third parties. Such arrangements provide us with intellectual property and other business rights crucial to our product development and commercialization. We have incorporated licensed technology into our tests. Our dependence on licensing, collaboration and other similar agreements with third parties may subject it to a number of risks. There can be no assurance that any current contractual arrangements between us and third parties or between our strategic partners and other third parties will be continued on materially similar terms and will not be breached or terminated early. Any failure to obtain or retain the rights to necessary technologies on acceptable commercial terms could require us to re-configure our products and services, which could negatively impact their commercial sale or increase the associated costs, either of which could materially harm our business and adversely affect our future revenues and ability to achieve sustained profitability.

We expect to continue and expand our reliance on collaborative and licensing arrangements. Establishing new strategic collaborations and licensing arrangements is difficult and time-consuming. Discussions with potential collaborators or licensors may not lead to the establishment of collaborations on favorable terms, if at all. To the extent we agree to work exclusively with one collaborator in a given area, our opportunities to collaborate with other entities could be limited. Potential collaborators or licensors may reject collaborations with it based upon their assessment of our financial, regulatory or intellectual property position or other factors. Even if we successfully establish new collaborations, these relationships may never result in the successful commercialization of any product or service. In addition, the success of the projects that require collaboration with third parties will be dependent on the continued success of such collaborators. There is no guarantee that our collaborators will continue to be successful and, as a result, we may expend considerable time and resources developing products or services that will not ultimately be commercialized.

Risks Related to Cybersecurity, Privacy and Information Technology

Interruption, interference with, or failure of our information technology and communications systems could hurt our ability to effectively provide our products and services, which could harm our reputation, financial condition, and operating results.

The availability of our products and services and fulfillment of our customer contracts depend on the continuing operation of our information technology and communications systems. Our systems are vulnerable to damage, interference, or interruption from terrorist attacks, natural disasters, the effects of climate change (such as sea level rise, drought, flooding, wildfires, and increased storm severity), power loss, telecommunications failures, computer viruses, ransomware attacks, computer denial of service attacks, phishing schemes, or other attempts to harm or access our systems. Some of our data centers are located in areas with a high risk of major earthquakes or other natural disasters. Our data centers are also subject to break-ins, sabotage, and intentional acts of vandalism, and, in some cases, to potential disruptions resulting from problems experienced by facility operators. Some of our systems are not fully redundant, and disaster recovery planning cannot account for all eventualities.

The occurrence of a natural disaster, closure of a facility, or other unanticipated problems at our data centers could result in lengthy interruptions in our service. In addition, our products and services are highly technical and complex and may contain errors or vulnerabilities, which could result in interruptions in or failure of our services or systems.

Security breaches, privacy issues, loss of data and other incidents could compromise sensitive, protected, or personal information related to our business, could prevent it from accessing critical information, and could expose it to regulatory liability, which could adversely affect our business.

In the ordinary course of our business, we collect and store sensitive data, including PHI, personally identifiable information, genetic information, credit card information, intellectual property and proprietary business information

owned or controlled by us or our customers, payers and other parties. We manage and maintain our applications and data utilizing a combination of on-site systems, managed data center systems and cloud-based systems. We also communicate PHI and other sensitive patient data through our various customer tools and platforms. In addition to storing and transmitting sensitive data that is subject to multiple legal protections, these applications and data encompass a wide variety of business-critical information including research and development information, commercial information, and business and financial information. We face a number of risks relative to protecting this critical information, including loss of access risk, inappropriate disclosure, inappropriate modification, and the risk of our being unable to adequately monitor and modify our controls over our critical information. Any technical problems that may arise in connection with the data that we access and our systems, including those that are hosted by third-party providers, could result in interruptions to our business and operations or exposure to security vulnerabilities. These types of problems may be caused by a variety of factors, including infrastructure changes, intentional or accidental human actions or omissions, software errors, malware, viruses, security attacks, fraud, spikes in customer usage and denial of service issues. From time to time, large third-party web hosting providers have experienced outages or other problems that have resulted in their systems being offline and inaccessible. Such outages could materially impact our business and operations.

The secure processing, storage, maintenance and transmission of this critical information are vital to our operations and business strategy, and we devote significant resources to protecting such information. Although we take what we believe to be reasonable and appropriate measures, including a formal, dedicated enterprise security program, to protect sensitive information from various compromises (including unauthorized access, disclosure, or modification or lack of availability), our information technology and infrastructure may be vulnerable to attacks by hackers or viruses or breached due to employee error, malfeasance or other disruptions. Any such breach or interruption could compromise our networks and the information stored therein could be accessed by unauthorized parties, altered, publicly disclosed, lost or stolen.

Further, some of our customer tools and platforms are currently accessible through a portal and there is no guarantee that we can protect our portal from a security breach. Unauthorized access, loss or dissemination could also disrupt our operations (including our ability to conduct our analyses, provide test results, bill payers or patients, process claims and appeals, provide customer assistance, conduct research and development activities, collect, process and prepare company financial information, provide information about our tests and other patient and physician education and outreach efforts through our website, and manage the administrative aspects of our business) and damage our reputation, any of which could adversely affect our business. In addition to data security risks, we also face privacy risks. Should we actually violate, or be perceived to have violated, any privacy promises our business makes to patients or consumers, it could be subject to a complaint from an affected individual or interested privacy regulator, such as the FTC, a state Attorney General, an EU Member State Data Protection Authority, or a data protection authority in another international jurisdiction. This risk is heightened given the sensitivity of the data we collect.

Any security compromise that causes an apparent privacy violation could also result in legal claims or proceedings; liability under federal, state, foreign, or multinational laws that regulate the privacy, security, or breach of personal information, such as but not limited to the HIPAA, HITECH, state data security and data breach notification laws, the EU's GDPR, the UK Data Protection Act of 2018; and related regulatory penalties. Penalties for failure to comply with a requirement of HIPAA or HITECH vary significantly, and, depending on the knowledge and culpability of the HIPAA-regulated entity, may include civil monetary penalties of up to $1.5 million per calendar year for each provision of HIPAA that is violated. A person who knowingly obtains or discloses individually identifiable health information in violation of HIPAA may face a criminal penalty of up to $50,000 and up to one-year imprisonment. The criminal penalties increase if the wrongful conduct involves false pretenses or the intent to sell, transfer or use identifiable health information for commercial advantage, personal gain or malicious harm. Penalties for unfair or deceptive acts or practices under the FTC Act or state Unfair and Deceptive Acts and Practices ("UDAP") statutes may also vary significantly.

There has been unprecedented activity in the development of data protection regulation around the world. As a result, the interpretation and application of consumer, health-related and data protection laws in the United States, Europe and elsewhere are often uncertain, contradictory and in flux. The GDPR took effect on May 25, 2018. The GDPR took effect on May 25, 2018. The GDPR applies to any entity established in the EU as well as

extraterritorially to any entity outside the EU that offers goods or services to, or monitors the behavior of, individuals who are located in the EU. The GDPR imposes strict requirements on controllers and processors of personal data, including enhanced protections for "special categories" of personal data, which includes sensitive information such as health and genetic information of data subjects. The GDPR also grants individuals various rights in relation to their personal data, including the rights of access, rectification, objection to certain processing and deletion. The GDPR provides an individual with an express right to seek legal remedies if the individual believes his or her rights have been violated. Failure to comply with the requirements of the GDPR or the related national data protection laws of the member states of the EU, which may deviate from or be more restrictive than the GDPR, may result in significant administrative fines issued by EU regulators. Maximum penalties for violations of the GDPR are capped at 20 million euros or 4% of an organization's annual global revenue, whichever is greater.

Further, the United Kingdom's decision to leave the EU, often referred to as Brexit, has created uncertainty with regard to data protection regulation in the United Kingdom. The relationship between the United Kingdom and the EU remains uncertain, for example how data transfers between the United Kingdom and the EU and other jurisdictions will be treated and the role of the United Kingdom's supervisory authority. For example, on June 28, 2021, the European Commission adopted the adequacy decision (the "UK Adequacy Decision") in the wake of a non-binding vote by the European Parliament against the then-draft UK Adequacy Decision the month prior. Consequently, personal data can continue to flow from the EEA to the United Kingdom without the need for appropriate safeguards. The UK Adequacy Decision includes a "sunset clause", rendering the decision valid for four years only, after which it will be reviewed by the European Commission and renewed only if the European Commission considers that the United Kingdom continues to ensure an adequate level of data protection. The European Commission also stated that it would intervene at any point within the four years if the United Kingdom deviates from the level of protection presently in place. If this adequacy decision reversed by the European Commission, it would require that companies implement protection measures such as the standard contractual clauses for data transfers between the EU and the United Kingdom.

Additionally, the implementation of GDPR has led other jurisdictions to either amend or propose legislation to amend their existing data privacy and cybersecurity laws to resemble the requirements of GDPR. For example, on June 28, 2018, California adopted the CCPA. The CCPA regulates how certain for-profit businesses that meet one or more CCPA applicability thresholds collect, use, and disclose the personal information of consumers who reside in California. Among other things, the CCPA confers to California consumers the right to receive notice of the categories of personal information that will be collected by a business, how the business will use and share the personal information, and the third parties who will receive the personal information; the CCPA also confers rights to access, delete, or transfer personal information; and the right to receive equal service and pricing from a business after exercising a consumer right granted by the CCPA. In addition, the CCPA allows California consumers the right to opt out of the "sale" of their personal information, which the CCPA defines broadly as any disclosure of personal information to a third party in exchange for monetary or other valuable consideration. The CCPA also requires a business to implement reasonable security procedures to safeguard personal information against unauthorized access, use, or disclosure. California amended the law in September 2018 to exempt all PHI collected by certain parties subject to HIPAA, and further amended the law in September 2020 to clarify that de-identified data as defined under HIPAA will also be exempt from the CCPA. The California Attorney General's final regulations implementing the CCPA took effect on August 14, 2020. The CCPA provides for civil penalties for violations, as well as a private right of action for data breaches resulting from a business's failure to implement and maintain reasonable data security procedures that is expected to increase data breach litigation. In addition, California voters recently approved the California Privacy Rights Act of 2020 ("CPRA") that is scheduled to go into effect on January 1, 2023. The CPRA would, among other things, amend the CCPA to give California residents the ability to limit the use of their sensitive information, provide for penalties for CPRA violations concerning California residents under the age of 16, and establish a new California Privacy Protection Agency to implement and enforce the law. Other jurisdictions in the United States are beginning to propose laws similar to CCPA. Some observers have noted that the CCPA could mark the beginning of a trend toward more stringent privacy legislation, which could increase our potential liability and adversely affect our business, results of operations, and financial condition.

It is possible the GDPR, CCPA and other emerging United States and international data protection laws may be interpreted and applied in manner that is inconsistent with our practices. If so, this could result in government-

imposed fines or orders requiring that we change our practices, which could adversely affect our business. In addition, these privacy laws and regulations may differ from country to country and state to state, and our obligations under these laws and regulations vary based on the nature of our activities in the particular jurisdiction, such as whether we collect samples from individuals in the local jurisdiction, perform testing in the local jurisdiction, or process personal information regarding employees or other individuals in the local jurisdiction. Complying with these various laws and regulations could cause us to incur substantial costs or require it to change our business practices and compliance procedures in a manner adverse to our business. We can provide no assurance that it is or will remain in compliance with diverse privacy and data security requirements in all of the jurisdictions in which we do business. Failure to comply with privacy and data security requirements could result in a variety of consequences, or damage to our reputation, any of which could have a material adverse effect on our business.

Data privacy and security concerns relating to our technology and our practices could damage our reputation, subject it to significant legal and financial exposure, and deter current and potential users or customers from using our products and services. Software bugs or defects, security breaches, and attacks on our systems could result in the improper disclosure and use of user data and interference with our users and customers' ability to use our products and services, harming our business operations and reputation.

Concerns about our practices with regard to the collection, use, disclosure, or security of personal information or other data-privacy-related matters, even if unfounded, could harm our reputation, financial condition, and operating results. Our policies and practices may change over time as expectations regarding privacy and data change.

Our products and services involve the storage and transmission of protected health information and other personal information, proprietary information, and bugs, theft, misuse, defects, vulnerabilities in our products and services, and security breaches expose it to a risk of loss of this information, improper use and disclosure of such information, litigation, and other potential liability. Systems and control failures, security breaches, failure to comply with our privacy policies, and/or inadvertent disclosure of user data could result in government and legal exposure, seriously harm our reputation and brand and, therefore, our business, and impair our ability to attract and retain users or customers. We expect to continue to expend significant resources to maintain security protections that shield against bugs, theft, misuse, or security vulnerabilities or breaches.

We experience cyber-attacks and other attempts to gain unauthorized access to our systems on a regular basis. We may experience future security issues, whether due to employee error or malfeasance or system errors or vulnerabilities in our or other parties' systems, which could result in significant legal and financial exposure. Government inquiries and enforcement actions, litigation, and adverse press coverage could harm our business. We may be unable to anticipate or detect attacks or vulnerabilities or implement adequate preventative measures. Attacks and security issues could also compromise trade secrets and other sensitive information, harming our business.

While we have dedicated significant resources to privacy and security incident response capabilities, including dedicated worldwide incident response teams, our response process may not be adequate, may fail to accurately assess the severity of an incident, may not respond quickly enough, or may fail to sufficiently remediate an incident. As a result, we may suffer significant legal, reputational, or financial exposure, which could harm our business, financial condition, and operating results.

We depend on our scientific computing and information technology and management systems and any failure of these systems could harm our business.

We depend on scientific computing and information technology and management systems, including third-party cloud computing infrastructure, operating systems and artificial intelligence platforms, for significant elements of our operations, including our laboratory information management system, clinical database, analytical platform, laboratory workflow tools, customer and collaborator reporting and related functions. We also depend on our proprietary workflow software to support new product and service launches and regulatory compliance.

We use complex software processes and bioinformatic pipelines to manage samples and evaluate sequencing result data. These are subject to initial design or ongoing modifications which may result in unanticipated issues that could cause variability in patient results, leading to service disruptions or errors, resulting in liability.

We have installed, and expects to expand, a number of enterprise software systems that affect a broad range of business processes and functional areas, including systems laboratory operations, handling human resources, financial controls and reporting, contract management, regulatory compliance and other infrastructure operations, and patient consent and information management. In addition to these business systems, we have installed, and intends to extend, the capabilities of both our preventative and detective security controls by augmenting the monitoring and alerting functions, the network design and the automatic countermeasure operations of our technical systems. These information technology and telecommunications systems support a variety of functions, including laboratory operations, test validation, sample tracking, quality control, customer service support, billing and reimbursement, research and development activities, scientific and medical curation and general administrative activities. In addition, our third-party billing and collections provider depends upon technology and telecommunications systems provided by outside vendors.

Information technology and telecommunications systems are vulnerable to damage from a variety of sources, including telecommunications or network failures, malicious internal or external human acts and natural disasters. Moreover, despite network security and back-up measures, some of our servers are potentially vulnerable to physical or electronic break-ins, computer viruses and similar disruptive problems. Despite the precautionary measures we have taken to prevent unanticipated problems that could affect our information technology and telecommunications systems, failures or significant downtime of these systems or those used by our collaborators or subcontractors could prevent it from conducting our comprehensive screening analysis, clinical diagnostics and drug discovery, preparing and providing reports to researchers, clinicians and our collaborators, billing payers, handling physician inquiries, conducting research and development activities and managing the administrative aspects of our business. Any disruption or loss of information technology or telecommunications systems on which critical aspects of our operations depend could have an adverse effect on our business and our reputation, and we may be unable to regain or repair our reputation in the future.

Our ability to transfer data stored outside of the United States could be limited by international regulations or other action by foreign governments, which could adversely affect our business.

Some of the data we process in the ordinary course of our business may be stored outside of the United States. In order to process such data, we may need to transfer them to countries other than those where they are stored. Should a foreign government adopt a regulation restricting the international transfer of such data, we may not be able to process them, which could adversely impact our business.

Risks Related to Being a Public Company

We will incur increased costs and demands on management as a result of compliance with laws and regulations applicable to public companies, which could harm our operating results.

As a public company, we incur significant legal, accounting and other expenses, including costs associated with public company reporting requirements. In addition, the Sarbanes-Oxley Act of 2002, the Sarbanes-Oxley Act, as well as rules implemented by the SEC and Nasdaq, impose a number of requirements on public companies, including with respect to corporate governance practices. The SEC and other regulators have continued to adopt new rules and regulations and make additional changes to existing regulations that require the company's compliance. In addition, the Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Dodd-Frank Act"), enacted in 2010, includes significant corporate governance and executive-compensation-related provisions. Our management and other personnel will need to devote a substantial amount of time to these compliance and disclosure obligations. If these requirements divert the attention of our management and personnel from other aspects of our business concerns, they could have a material adverse effect on our business, financial condition and results of operations. Moreover, these rules and regulations applicable to public companies substantially could increase our legal, accounting and financial compliance costs, require that we hire additional personnel and make some activities more time consuming and costly.

A market for our securities may not continue, which would adversely affect the liquidity and price of our securities.

The price of our securities may fluctuate significantly due to general market and economic conditions. An active trading market for our securities may not be sustained. In addition, the price of our securities can vary due to general economic conditions and forecasts, our general business condition and the release of our financial reports. You may be unable to sell your securities when desired or at an acceptable price unless an active trading market can be sustained.

If we do not meet the expectations of investors, stockholders or financial analysts, the market price of our securities may decline.

If we do not meet the expectations of investors or securities analysts, the market price of our securities may decline. In addition, fluctuations in the price of our securities could contribute to the loss of all or part of your investment. If an active market for our securities does not continue, the trading price of our securities could be volatile and subject to wide fluctuations in response to various factors, some of which are beyond our control. Any of the factors listed below could have a material adverse effect on your investment in our securities and our securities may trade at prices significantly below the price you paid for them. In such circumstances, the trading price of our securities may not recover and may experience a further decline.

Factors affecting the trading price of our securities may include:

- actual or anticipated fluctuations in our quarterly financial results or the quarterly financial results of companies perceived to be similar to us;
- changes in the market's expectations about our operating results;
- the public's reaction to our press releases, our other public announcements and our filings with the SEC;
- speculation in the press or investment community;
- announcements of technological innovation, new products, acquisitions, strategic alliances, significant agreements by us or competitors;
- success of competitors;
- our operating results falling below our financial guidance or other projections or failing to meet the expectation of securities analysts or investors in a particular period;
- changes in financial estimates and recommendations by securities analysts concerning us or the market in general;
- operating and stock price performance of other companies that investors deem comparable to us;
- our ability to market new and enhanced products on a timely basis;
- changes in laws and regulations affecting our business;
- commencement of, or involvement in, litigation involving us;
- changes in our capital structure, such as future issuances of securities or the incurrence of additional debt;
- risks that the Acquisition disrupts our current plans and operations or affects our ability to retain or recruit key employees;
- risks related to the Acquisition diverting management's or employees' attention from ongoing business operations;

- the effect of the Acquisition on our business relationships (including, without limitation customers, strategic partners, collaborators and suppliers), operating results and business generally;
- the amount of the costs, fees, expenses and charges related to the Acquisition;
- the volume of shares of our Class A common stock available for public sale;
- any major change in our Board or management;
- sales of substantial amounts of Class A common stock by our directors, officers or significant stockholders or the perception that such sales could occur;
- the expiration of the market stand-off or contractual lock-up agreements;
- the realization of any of the risk factors described herein;
- additions or departures of key personnel;
- failure to comply with the requirements of Nasdaq;
- failure to comply with the Sarbanes-Oxley Act or other laws or regulations;
- actual, potential or perceived control, accounting or reporting problems;
- changes in accounting principles, policies and guidelines; and
- general economic and political conditions such as recessions, inflation and interest rates, fuel prices, international currency fluctuations and acts of war or terrorism.

Broad market and industry factors may materially harm the market price of our securities irrespective of our operating performance. The stock market in general and Nasdaq have experienced price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of the particular companies affected. The trading prices and valuations of these stocks, and of our securities, may not be predictable. A loss of investor confidence in the market for the stocks of other companies which investors perceive to be similar to us could depress our stock price regardless of our business, prospects, financial conditions or results of operations. A decline in the market price of our securities also could adversely affect our ability to issue additional securities and our ability to obtain additional financing in the future.

In the past, securities class action litigation has often been initiated against companies following periods of volatility in their stock price. This type of litigation could result in substantial costs and divert our management's attention and resources, and could also require us to make substantial payments to satisfy judgments or to settle litigation.

If securities or industry analysts cease publishing research or reports about us, our business, or our market, or if they change their recommendations regarding our Class A common stock adversely, then the price and trading volume of our Class A common stock could decline.

The trading market for our Class A common stock is influenced by the research and reports that industry or securities analysts publish about us, our business, our market, or our competitors. If any of the analysts who cover us change their recommendation regarding our stock adversely, or provide more favorable relative recommendations about our competitors, the price of our Class A common stock would likely decline. If any analyst who covers us were to cease coverage of us or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our stock price or trading volume to decline.

Changes in laws, regulations or rules, or a failure to comply with any laws, regulations or rules, may adversely affect our business, investments and results of operations.

We are subject to laws, regulations and rules enacted by national, regional and local governments and Nasdaq. In particular, we are required to comply with certain SEC, Nasdaq and other legal or regulatory requirements. Compliance with, and monitoring of, applicable laws, regulations and rules may be difficult, time consuming and costly. Those laws, regulations or rules and their interpretation and application may also change from time to time and those changes could have a material adverse effect on our business, investments and results of operations. In addition, a failure to comply with applicable laws, regulations or rules, as interpreted and applied, could have a material adverse effect on our business and results of operations.

Anti-takeover provisions contained in our Charter and Bylaws, as well as provisions of Delaware law, could impair a takeover attempt.

Our Charter contains provisions that may discourage unsolicited takeover proposals that stockholders may consider to be in their best interests. We are also subject to anti-takeover provisions under Delaware law, which could delay or prevent a change of control. Together, these provisions may make more difficult the removal of management and may discourage transactions that otherwise could involve payment of a premium over prevailing market prices for our securities. These provisions will include:

- no cumulative voting in the election of directors, which limits the ability of minority stockholders to elect director candidates;
- a classified board of directors with three-year staggered terms, which could delay the ability of stockholders to change the membership of a majority of the Board;
- the requirement that directors may only be removed from the Board for cause;
- the right of our Board to elect a director to fill a vacancy created by the expansion of our Board or the resignation, death or removal of a director in certain circumstances, which prevents stockholders from being able to fill vacancies on our Board;
- a prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;
- a prohibition on stockholders calling a special meeting and the requirement that a meeting of stockholders may only be called by a majority of the board, our chairman of the board or our chief executive officer and may not be called by any other person, which may delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors;
- the requirement that changes or amendments to certain provisions of our Charter must be approved by holders of at least two-thirds of our Class A common stock; and
- advance notice procedures that stockholders must comply with in order to nominate candidates to our Board or to propose matters to be acted upon at a meeting of stockholders, which may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer’s own slate of directors or otherwise attempting to obtain control of us.

The JOBS Act permits “emerging growth companies” like us to take advantage of certain exemptions from various reporting requirements applicable to other public companies that are not emerging growth companies.

We currently qualify as an “emerging growth company” as defined in Section 2(a)(19) of the Securities Act, as modified by the JOBS Act. As such, we take advantage of certain exemptions from various reporting requirements applicable to other public companies that are not emerging growth companies for as long as we continue to be an emerging growth company, including: (i) the exemption from the auditor attestation requirements with respect to internal control over financial reporting under Section 404 of the Sarbanes-Oxley Act; (ii) the exemptions from say-on-pay, say-on-frequency and say-on-golden parachute voting requirements; and (iii) reduced disclosure obligations

regarding executive compensation in our periodic reports. As a result, our stockholders may not have access to certain information they deem important. We will remain an emerging growth company until the earliest of (i) the last day of the fiscal year: (a) following September 1, 2025, the fifth anniversary of the initial public offering of CMLS; (b) in which we have total annual gross revenue of at least $1.07 billion; or (c) in which we are deemed to be a large accelerated filer, which means the market value of our Class A common stock that is held by non-affiliates exceeds $700.0 million as of the prior June 30th, and (ii) the date on which we have issued more than $1.0 billion in non-convertible debt during the prior three-year period.

In addition, Section 107 of the JOBS Act also provides that an emerging growth company can take advantage of the exemption from complying with new or revised accounting standards provided in Section 7(a)(2)(B) of the Securities Act as long as we are an emerging growth company. An emerging growth company can therefore delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. The JOBS Act provides that a company can elect to opt out of the extended transition period and comply with the requirements that apply to non-emerging growth companies, but any such election to opt out is irrevocable. We have elected to avail ourselves of such extended transition period, which means that when a standard is issued or revised and it has different application dates for public or private companies, we, as an emerging growth company, can adopt the new or revised standard at the time private companies adopt the new or revised standard. This may make comparison of our financial statements with another public company that is neither an emerging growth company nor an emerging growth company that has opted out of using the extended transition period difficult or impossible because of the potential differences in accounting standards used.

Additionally, we are a “smaller reporting company” as defined in Item 10(f)(1) of Regulation S-K. Smaller reporting companies may take advantage of certain reduced disclosure obligations, including, among other things, providing only two years of audited consolidated financial statements. We will remain a smaller reporting company until the last day of the fiscal year in which (i) the market value of our Class A common stock held by non-affiliates exceeds $250 million as of the prior June 30, or (ii) our annual revenues exceeded $100 million during such completed fiscal year and the market value of our Class A common stock held by non-affiliates exceeds $700 million as of the prior June 30.

We cannot predict if investors will find our Class A common stock less attractive because we rely on these exemptions. If some investors find our Class A common stock less attractive as a result, there may be a less active trading market for our Class A common stock and our stock price may be more volatile.

Our internal controls over financial reporting may not be effective and our independent registered public accounting firm may not be able to certify as to their effectiveness, which could have a significant and adverse effect on our business and reputation.

As a public company, we are required to comply with the SEC’s rules implementing Sections 302 and 404 of Sarbanes-Oxley Act, which require management to certify financial and other information in our quarterly and annual reports and provide an annual management report on the effectiveness of internal control over financial reporting. To comply with the requirements of being a public company, we are required to provide management’s assessment on internal controls, and we may need to undertake various actions, such as implementing additional internal controls and procedures and hiring additional accounting or internal audit staff. Further, as an emerging growth company, our independent registered public accounting firm is not required to formally attest to the effectiveness of our internal controls over financial reporting pursuant to Section 404 until the date we are no longer an emerging growth company. At such time, our independent registered public accounting firm may issue a report that is adverse in the event that it is not satisfied with the level at which the controls of the company are documented, designed or operating.

Testing and maintaining these controls can divert our management’s attention from other matters that are important to the operation of our business. If we identify material weaknesses in the internal control over financial reporting of the company or are unable to comply with the requirements of Section 404 or assert that our internal control over financial reporting is effective, or if our independent registered public accounting firm is unable to express an opinion as to the effectiveness of our internal controls over financial reporting when we no longer qualify as an emerging growth company, investors may lose confidence in the accuracy and completeness of our financial

reports and the market price of our Class A common stock could be negatively affected, and we could become subject to investigations by the SEC or other regulatory authorities, which could require additional financial and management resources.

Our Charter designates the Court of Chancery of the State of Delaware and federal court within the State of Delaware as the exclusive forum for certain types of actions and proceedings that our stockholders may initiate, which could limit a stockholder's ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our Charter designates the Court of Chancery of the State of Delaware and federal court within the State of Delaware as the exclusive forum for certain types of actions and proceedings that our stockholders may initiate, which could limit a stockholder's ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our Charter provides that, subject to limited exceptions, the Court of Chancery of the State of Delaware and federal court within the State of Delaware will be exclusive forums for any:

- derivative action or proceeding brought on our behalf;
- action asserting a claim of breach of a fiduciary duty owed by, or other wrongdoing by, any of our directors, officers, stockholders, employees or agents to us or our stockholders;
- action asserting a claim against the us or any of our directors, officers, stockholders, employees or agents arising pursuant to any provision of the DGCL, our Charter or our Bylaws or as to which the DGCL confers jurisdiction on the Court of Chancery of the State of Delaware:
- action to interpret, apply, enforce or determine the validity of our Charter or our Bylaws; or
- other action asserting a claim against us or any of our directors, officers, stockholders, employees or agents that is governed by the internal affairs doctrine.

This choice of forum provision does not apply to actions brought to enforce a duty or liability created under the Exchange Act or any other claim for which federal courts have jurisdiction. Furthermore, in accordance with our Bylaws, unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States will be, to the fullest extent permitted by law, the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. Any person or entity purchasing or otherwise acquiring or holding any interest in any of our securities shall be deemed to have notice of and consented to our exclusive forum provision in our Bylaws and the choice of forum provision in our Charter.

These provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or any of our directors, officers, or other employees, which may discourage lawsuits with respect to such claims. Alternatively, if a court were to find the choice of forum provisions contained in our Charter to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could harm our business, results of operations and financial condition.

The stockholders will not be deemed to have waived our compliance with the federal securities laws and the regulations promulgated thereunder.

Any person or entity purchasing or otherwise acquiring or holding any interest in any of our securities shall be deemed to have notice of and consented to our exclusive forum provisions, including the choice of forum provision. These provisions may limit a stockholders' ability to bring a claim, and may result in increased costs for a stockholder to bring a claim in a judicial forum of their choosing for disputes with us or our directors, officers, or other employees, which may discourage lawsuits against us and our directors, officers, and other employees.

Risks Related to Our Common Stock and Warrants

Our warrants are exercisable for our Class A common stock, which will increase the number of shares eligible for future resale in the public market and result in dilution to our stockholders.

As of December 31, 2021, our public warrants are exercisable for 14,758,305 shares of Class A common stock at $11.50 per share. Our private warrants are exercisable for 7,236,667 shares of Class A common stock at $11.50 per share. The additional shares of our Class A common stock issuable upon exercise of our warrants will result in dilution to the then existing holders of our Class A common stock and increase the number of shares eligible for resale in the public market. Sales of substantial numbers of such shares in the public market could adversely affect the market price of our Class A common stock.

Our warrants are accounted for as liabilities and the changes in value of our warrants could have a material effect on our financial results.

Included on our balance sheet as of December 31, 2021 are derivative liabilities related to our warrants. Accounting Standards Codification 815, Derivatives and Hedging ("ASC 815") provides for the remeasurement of the fair value of such derivatives at each balance sheet date, with a resulting non-cash gain or loss related to the change in the fair value being recognized in earnings in the statement of operations. As a result of the recurring fair value measurement, our financial statements and results of operations may fluctuate quarterly, based on factors, which are outside of our control. Due to the recurring fair value measurement, we expect that we will recognize non-cash gains or losses on our warrants each reporting period and that the amount of such gains or losses could be material.

Future resales of our Class A common stock could cause the market price of our common stock to drop significantly, even if our business is doing well.

Sales of a substantial number of shares of our Class A common stock in the public market could occur at any time. These sales, or the perception in the market that the holders of a large number of shares intend to sell shares, could reduce the market price of our Class A common stock.

We had outstanding 377,249,186 shares of Class A common stock as of April 29, 2022. The registration statement to which this prospectus relates registers the offer and sale from time to time by the Selling Stockholders of up to 160,864,198 shares of common stock, although the 110,864,198 shares registered on behalf of OPKO will be subject to transfer restrictions pursuant to the Shareholder Agreements. See "*Certain Relationships and Related Party Transactions—Related Party Transactions Related to the Acquisition—Shareholder Agreements*" for more information regarding these transfer restrictions. In addition, we have filed a separate registration statement that the registers the offer and sale from time to time by certain selling security holders of up to an additional 229,657,978 shares of our Class A common stock. Furthermore, beginning on July 29, 2022, Rule 144 will become available for the resale of any shares that are restricted or control securities, subject to volume and other restrictions as applicable under Rule 144. To the extent shares are sold into the market pursuant to this prospectus, under Rule 144 or otherwise, particularly in substantial quantities and including following the end of the transfer restrictions provided for in the Shareholder Agreements in the case of OPKO and the other Lock-Up Holders, the market price of our Class A common stock could decline.

USE OF PROCEEDS

All of the securities offered by the Selling Stockholders pursuant to this prospectus will be sold by the Selling Stockholders for their respective accounts. We will not receive any of the proceeds from these sales.

The Selling Stockholders will pay any underwriting discounts and commissions and expenses incurred by the Selling Stockholders for brokerage, accounting, tax or legal services or any other expenses incurred by the Selling Stockholders in disposing of the securities. We will bear the costs, fees and expenses incurred in effecting the registration of the securities covered by this prospectus, including all registration and filing fees, Nasdaq listing fees and fees and expenses of our counsel and our independent registered public accounting firm.

MARKET INFORMATION FOR COMMON STOCK AND DIVIDEND POLICY

Market Information

Our Class A common stock and public warrants are listed on the Nasdaq under the symbols “SMFR” and “SMFRW,” respectively. On May 10, 2022, the closing sale price of our Class A common stock was $1.78 per share and the closing price of the public warrants was $0.29 per warrant. As of May 10, 2022, there were approximately 76 holders of record of our Class A common stock. Such numbers do not include beneficial owners whose shares were held of record by nominees or broker dealers.

Dividend Policy

We have never paid any cash dividends on our capital stock. We anticipate that we will retain earnings, if any, to support operations and to finance the growth and development of our business. In addition, the terms of the revolving credit facility with Silicon Valley Bank (“SVB”) precludes us from paying cash dividends without the prior written consent of SVB. Therefore, we do not expect to pay cash dividends for the foreseeable future.

UNAUDITED PRO FORMA COMBINED FINANCIAL INFORMATION

Defined terms included below have the same meaning as terms defined and included elsewhere in the prospectus. Unless otherwise indicated or the context otherwise requires, references in this section to (i) "we," "our," "Sema4" and the "Company" refer to Sema4 Holdings Corp., a Delaware corporation, and its consolidated subsidiary and to (ii) "GeneDx," refers to (a) GeneDx, Inc., a New Jersey corporation prior to the Closing of the Acquisition and (b) GeneDx, LLC, a Delaware limited liability company following the Closing of the Acquisition.

Introduction

The following unaudited pro forma combined financial statements are based on the historical consolidated financial statements of Sema4 and historical combined financial statements of GeneDx and are adjusted to illustrate the estimated effects of the Acquisition as described below. In order to finance the Acquisition, Sema4 entered into Subscription Agreements with the PIPE Investors. The PIPE Investment closed substantially concurrently with the closing of the Acquisition.

Sema4 is a patient-centered, health intelligence company with a mission to use artificial intelligence, or AI, and machine learning to enable personalized medicine for all. Sema4's integrated information platform leverages longitudinal patient data, AI-driven predictive modeling, and genomics in combination with other molecular and high-dimensional data in our efforts both to deliver better outcomes for patients and to transform the practice of medicine, including how disease is diagnosed, treated, and prevented. Sema4 is headquartered in Stamford, Connecticut.

GeneDx, is a patient-centric health information company and leader in delivering clinical genomic answers to an ever-increasing community of patients, families and healthcare providers. With more than 20 years of experience in diagnosing rare disorders and diseases, GeneDx have pioneered panels, exome and whole genome sequencing and have developed a proprietary genomic interpretation and information services platform in support of healthcare partners and patients globally. GeneDx is headquartered in Elmwood Park in New Jersey.

The following unaudited pro forma combined balance sheet as of December 31, 2021, combines the audited historical consolidated balance sheet of Sema4 as of December 31, 2021, with the audited historical combined carve out balance sheets of GeneDx as of December 31, 2021, giving effect to the Acquisition, the PIPE Investment and all factually supportable adjustments that are directly attributable to the Transactions, as if they had been consummated as of that date.

The following unaudited pro forma combined statements of operations for the year ended December 31, 2021, combine the historical consolidated statements of comprehensive loss of Sema4 and the historical combined carve out statements of comprehensive loss of GeneDx for such periods, giving effect to the Acquisition, the PIPE Investment and all factually supportable adjustments that are directly attributable to the Transactions, as if they had been consummated on January 1, 2021, the beginning of the earliest period presented.

The unaudited pro forma combined financial information presented is based on the estimates, assumptions and adjustments described in the accompanying notes. The unaudited pro forma combined financial information is derived from the respective historical consolidated financial statements of Sema4 and combined carve out financial statements of GeneDx as described further in Note 2 — Basis of Presentation. The unaudited pro forma combined financial information includes adjustments which are preliminary and may be revised after closing. There can be no assurance that such revisions will not result in material changes. The unaudited pro forma combined financial information is presented for illustrative purposes only and is not necessarily indicative of the results or financial position that would have occurred or that may occur in the future had the Acquisition and PIPE Investment been completed on the dates indicated, nor is it necessarily indicative of the future operating results or financial position of Sema4 after the Acquisition. Future results may vary significantly from the results reflected because of various factors.

The unaudited pro forma combined financial information has been compiled in a manner consistent with the accounting policies adopted by Sema4. Subsequent to completion of the Acquisition, Sema4 will perform a more detailed review of the GeneDx accounting policies. As a result of that review, differences could be identified

between the accounting policies of the two companies that, when conformed, have a material impact on the combined financial statements.

UNAUDITED PRO FORMA COMBINED BALANCE SHEET
AS OF DECEMBER 31, 2021
(in thousands, except share and per share amounts)

	Historical		Pro Forma	
	Sema4	GeneDx	Pro forma Adjustment (Note 4)	Pro Forma Balance Sheet
ASSETS				
Current assets:				
Cash and cash equivalents	$ 400,569	$ 144	$ 49,201 a1	$ 449,914
Accounts receivable	26,509	20,341	—	46,850
Due from related parties	54	—	—	54
Inventory	33,456	7,828	—	41,284
Prepaid expenses	19,154	3,422	(594) b5	21,982
Other current assets	3,802	1,804	—	5,606
Total current assets	483,544	33,539	48,607	565,690
Property and equipment, net	62,719	28,277	—	90,996
Restricted cash	900	—	—	900
Other assets	6,930	53	—	6,983
Intangible assets	—	166,888	50,112 e1	217,000
Goodwill	—	282,024	6,936 f	288,960
Due from Parent and its subsidiaries	—	5	(5) b2	—
Operating lease right of use assets	—	5,789	(5,789) c	—
Investment in related companies	—	205	(205) b1	—
Total assets	$ 554,093	$ 516,780	$ 99,656	$ 1,170,529
LIABILITIES AND STOCKHOLDERS' EQUITY				
Current liabilities:				
Accounts payable	$ 44,693	$ 5,397	$ —	$ 50,090
Accrued expenses	20,108	15,565	—	35,673
Due to related parties	2,623	—	—	2,623
Current portion of capital lease obligations	3,419	—	—	3,419
Current contract liabilities	473	—	—	473
Other current liabilities	29,968	571	—	30,539
Income tax payable	—	180	(180) b3	—
Total current liabilities	101,284	21,713	(180)	122,817
Long-term debt, net of current portion	11,000	—	—	11,000
Capital lease obligation, net of current portion	18,427	—	—	18,427
Other liabilities	3,480	—	15,800 a3	19,280
Earn-out liabilities	10,244	—	—	10,244
Warrant liability	21,555	—	—	21,555
Operating lease liabilities	—	9,936	(9,936) c	—
Deferred tax liabilities, net	—	24,063	(24,063) b4	—
Total liabilities	165,990	55,712	(18,379)	203,323
STOCKHOLDERS' EQUITY				
Sema4 Class A common stock, $0.0001 par value	24	—	13 a1,a2	37
Additional paid-in capital	963,520	660,506	(148,292) g	1,475,734
Accumulated deficit	(575,441)	(199,438)	266,314 b4	(508,565)
Total stockholders' equity	388,103	461,068	118,035	967,206
Total liabilities and stockholders' equity	$ 554,093	$ 516,780	$ 99,656	$ 1,170,529

See accompanying notes to the unaudited pro forma combined financial information.

UNAUDITED PRO FORMA COMBINED STATEMENT OF OPERATIONS
FOR THE YEAR ENDED DECEMBER 31, 2021
(in thousands, except share and per share amounts)

	Historical		Pro forma	
	Sema4	GeneDx	Pro Forma Adjustments (Note 4)	Pro Forma Statement of Operations
Revenue:				
Diagnostic test revenue	$ 205,100	$ 116,595	$ —	$ 321,695
Other revenue	7,095	—	—	7,095
Total revenue	212,195	116,595	—	328,790
Cost of services	228,797	84,361	—	313,158
Total gross profit (loss)	(16,602)	32,234	—	15,632
Operating expenses:				
Research and development	105,162	12,377	—	117,539
Selling and marketing	112,738	12,145	7,219 d1,d3	132,102
General and administrative	205,988	40,294	11,113 d2,d3	257,395
Related party expenses	5,659	—	—	5,659
Amortization of intangible assets	—	16,813	(16,813) e3	—
Loss from operations	(446,149)	(49,395)	(1,519)	(497,063)
Other income (expense):				
Change in fair value of warrant and earn-out contingent liabilities	198,401	—	—	198,401
Interest income	79	—	—	79
Interest expense	(2,835)	—	—	(2,835)
Other income (expense), net	5,114	(44)	40 b1	5,110
Total other income (expense), net	200,759	(44)	40	200,755
Net loss before income taxes	(245,390)	(49,439)	(1,479)	(296,308)
Provision or benefit for income taxes	—	12,547	54,329 d4	66,876
Net loss	$ (245,390)	$ (36,892)	$ 52,850	$ (229,432)
Weighted average shares outstanding, basic and diluted	108,077,439	—	130,000,000	238,077,439
Basic and diluted net loss per share	$ (2.27)	$ —	$ —	$ (0.96)

See accompanying notes to the unaudited pro forma combined financial information.

NOTES TO UNAUDITED PRO FORMA COMBINED FINANCIAL INFORMATION

1. Description of Acquisition

On January 14, 2022, Sema4, Merger Sub I and Merger Sub II entered into the Merger Agreement with GeneDx, a wholly-owned subsidiary of OPKO, Holdco and OPKO.

At the Closing, GeneDx converted into a Delaware limited liability company and became a wholly-owned indirect subsidiary of Sema4. Subject to the terms and conditions of the Merger Agreement, Sema4 (a) agreed to pay consideration to OPKO, for the Acquisition of (i) $150 million in cash at the closing of the Acquisition, subject to certain adjustments as provided in the Acquisition Merger Agreement and (ii) 80 million shares of Sema4's Class A common stock issued at the Closing and (b) will pay consideration to OPKO of up to $150 million payable following the Closing, if certain revenue-based milestones are achieved for each of the fiscal years ending December 31, 2022 and December 31, 2023. Each Milestone Payment, if and to the extent earned under the terms of the Merger Agreement, will be satisfied through the payment and/or issuance of a combination of cash and shares of Class A common stock (valued at $4.86 per share based on the average of the daily volume average weighted price of Class A common stock over the period of 30 trading days ended January 12, 2022), with such mix to be determined in Sema4's sole discretion.

Additionally, in connection with entering into the Merger Agreement, Sema4 entered into Subscription Agreements for the PIPE Investment to sell $200 million in Class A common stock at a price of $4.00 per share to the PIPE Investors.

2. Basis of Presentation

The unaudited pro forma financial information set out below has been prepared in accordance with Article 11 of Regulation S-X, as amended by the SEC Final Rule Release No. 33 10786, Amendments to Financial Disclosures About Acquired and Disposed Businesses ("*Regulation S-X*"), using accounting policies in accordance with GAAP.

The unaudited pro forma combined financial statements have been derived from and should be read in conjunction with:

- the accompanying notes to the unaudited pro forma combined financial statements;
- the audited historical consolidated financial statements of Sema4 as of December 31, 2021, and the related notes, in each case, included in this prospectus;
- the (i) audited historical combined carve out financial statements of GeneDx as of and for the year ended December 31, 2021, and the related notes, in each case, included in this prospectus; and
- the section of this prospectus entitled "*Management's Discussion and Analysis of Financial Condition and Results of Operations*" and the other financial information included elsewhere in this prospectus.

Management elected not to present any adjustments related to synergies or dis-synergies that may exist.

The unaudited pro forma combined financial statements have been prepared for illustrative purposes only and are not intended to represent or be indicative of the consolidated financial results of operations in future periods or the results that actually would have been achieved if Sema4 and GeneDx had been a combined company during the periods presented. The actual results of operations may differ significantly from the pro forma amounts reflected herein due to a variety of factors. The unaudited pro forma combined statement of operations does not reflect any operating efficiencies and/or cost savings that Sema4 may achieve with respect to the combined company.

The Acquisition will be accounted for using the acquisition method of accounting in accordance with Accounting Standards Codification ("ASC") 805 - Business Combinations. Under the acquisition method of accounting, the total purchase price is allocated to the tangible and identifiable intangible assets and liabilities assumed based on their relative fair values. The excess of the purchase price over the net assets is recorded as goodwill. The purchase price allocations are preliminary because valuation of the net assets is still being finalized.

Accordingly, the pro forma adjustments related to the purchase price allocations and certain other estimates, assumptions, and adjustments are preliminary and subject to change, which changes could be significant.

3. GeneDx Accounting Policies Historical Financial Statement Reclassification

GeneDx's historical combined carve out financial statements were prepared in accordance with U.S. GAAP. Sema4 performed certain procedures for the purposes of identifying material differences in significant accounting policies between Sema4 and GeneDx, and any accounting adjustments that would be required in connection with adopting uniform policies. These procedures included a review of GeneDx's standalone combined carve out financial statements and preliminary discussion with GeneDx management. Sema4 does not believe there are any differences in the accounting policies that will result in material adjustments to Sema4's consolidated financial statements. Subsequent to completion of the Acquisition, or as more information becomes available, Sema4 will perform a more detailed review of the GeneDx accounting policies. As a result of that review, differences could be identified between the accounting policies of the two companies that, when conformed, could have a material impact on the combined financial statements.

Additionally, $12.1 million included as selling, general and administrative in GeneDx's historical financial information included within the unaudited pro forma combined financial information has been reclassified to selling and marketing to conform the presentation to that of Sema4.

4. Adjustments to unaudited pro forma combined financial information

The adjustments included in the unaudited preliminary pro forma combined financial statements are as follows:

a) Estimated aggregate purchase price consideration and allocation:

The aggregate purchase price consideration is estimated to be approximately $478.8 million as follows (in millions):

Cash Consideration	$	150.0
Less: Closing Net Working Capital Adjustment		(10.2)
Cash Consideration [(a1)]		139.8
Add: Stock Consideration [(a2)]		323.2
Add: Fair value of Contingent Consideration [(a3)]		15.8
Aggregate Purchase Price Consideration	$	478.8

a1) This represents cash consideration estimated net of net working capital adjustment ($10.2 million) based on the closing net working capital target of $22 million, as stated in the Merger Agreement. This cash consideration is offset by gross proceeds of $200 million which is based on 50 million shares of Class A common stock at a price of $4.00 per share in accordance with the Subscription Agreements that have been entered into with PIPE investors. The $200 million gross proceeds are offset by the estimated incremental transaction costs to be paid by Sema4 for $11 million, resulting in an approximately $49 million adjustment to cash and cash equivalents. These amounts are estimates.

a2) 80 million shares of Sema4 Class A common stock were issued to the seller upon closing of the Acquisition. We estimated the Stock Consideration based on a per share price of $4.04, which was the closing price of the Class A common stock on January 14, 2022, the date the Merger Agreement was signed. The closing price of Sema4 Class A common stock on April 29, 2022 was $2.15 which would change the value of the purchase price by approximately $151.2 million.

a3) The fair value of the $15.8 million Milestone Payment is estimated using a Monte Carlo simulation valuation model. Pay-out of this consideration is dependent upon GeneDx achieving 2022 and 2023 revenue target of $163 million and $219 million, respectively.

The purchase price allocations for the assets acquired and liabilities assumed are based on preliminary valuations and are subject to change as we obtain additional information (in thousands).

Cash and cash equivalents		$	144
Accounts receivables, net			20,341
Inventory			7,828
Other current assets	d2		4,632
Non-current assets	b1,b2,c		28,330
Current liabilities	b3		(21,533)
Deferred tax liabilities	b4,c		(66,876)
Fair value of net assets acquired			(27,134)
Goodwill	f		288,960
Identifiable Intangible	e		217,000
Aggregate purchase price	a	$	478,826

The estimated value of the purchase price consideration does not purport to represent the actual value of the total Merger Consideration that was paid when the Acquisition was completed. As discussed above, the Stock Consideration would change the purchase price by approximately $151.2 million based on the closing price of Sema4 Class A common stock on April 29, 2022 of $2.15.

b) Elimination of GeneDx's historical balance sheet accounts that are not acquired or assumed by Sema4:

b1) As part of the pre-closing condition, GeneDx exited the joint venture investment that had a carrying value of $0.2 million. Therefore, the related investment balance and impairment loss of $0.04 million is eliminated.

b2) Represents adjustment to eliminate the carrying value of intercompany receivables.

b3) Represents adjustment to eliminate the income tax payable.

b4) Deferred tax liabilities of $24.1 million were adjusted due to certain deferred tax assets being absorbed by OPKO and the write off of historical intangible assets. Therefore, they do not carry over. Additionally, there are deferred tax liabilities recorded for $66.9 million related to intangible assets that will result in the release of Sema4's valuation allowance in a corresponding amount. The impact of the valuation allowance release is reflected in the unaudited pro forma combined statement of operations as well as the accumulated deficit.

b5) Represents adjustment to eliminate the prepaid bonus of GeneDx executives.

c) This adjustment relates to eliminating the affect of the ASC 842, Leases ("ASC 842") which was adopted by GeneDx because Sema4 did not adopt the ASC 842 as of December 31, 2021. Therefore, the adjustment removed the carrying value of the right of use assets ($5.8 million) and lease liabilities ($9.9 million). As an emerging growth company, the Company elected to adopt the ASC 842 under the extended transition period available, which will be effective for the annual period beginning on January 1, 2022 and all interim periods within the year ended December 31, 2023. Early adoption is permitted.

d) Adjustment of GeneDx's historical income statement accounts relates to the following (in millions):

d1) Adjustment of $7.2 million of selling and marketing expense is primarily related to the amortization expense of identifiable intangible assets (e2) and stock-based compensation adjustment (d3).

d2) Adjustment of $11.1 million of general and administrative expense is primarily related to the amortization expense of identifiable intangible assets (e2) and stock-based compensation adjustment (d3).

d3) Stock-based compensation adjustment represents estimated $6.2 million of Sema4 stock awards that are agreed to be granted to certain executives following the transaction closing. We only considered the contingent grants made to certain GeneDx executives who are continuing their employment with Sema4. The grant date fair value for options were calculated using a Black-Scholes option-pricing model, using the closing share price as of January 14, 2022 of $4.04, risk free rate of 1.64%, expected life of 5.5 years, volatility 65.2% and dividend yield of zero. The fair value of the restricted stock units are calculated using Sema4's closing share price as of January 14, 2022, $4.04. The expense is reduced by $1.2 million of stock-based compensation recorded for the executives and reflected in GeneDx financial information under their current employment agreement with GeneDx.

d4) Income tax benefit of $12.5 million is eliminated as we expect GeneDx's parent company to absorb this benefit. In addition, we adjust for $66.9 million of income tax benefit related to the deferred tax liabilities of identifiable intangible assets created in connection with the Acquisition.

e) Reflects the adjustment to record the fair values of the identifiable intangible assets created in connection with the Acquisition.

The fair value of GeneDx's trade name and trademarks and developed technology intangible assets were determined using the relief from royalty method under the income approach, which estimates the cost savings generated by a company related to the ownership of an asset for which it would otherwise have had to pay royalties or license fees on revenues earned through the use of the asset. The discount rate used is determined at the time of measurement based on an analysis of the implied internal rate of return of the transaction, weighted average cost of capital, and weighted average return on assets.

The fair value of the customer relationships was calculated using a multi-period excess earnings method, a form of the income approach, which incorporates the estimated future cash flows to be generated from GeneDx's existing customer base. Excess earnings are the earnings remaining after deducting the market rates of return on the estimated values of contributory assets, including debt-free net working capital, tangible assets, and other identifiable intangible assets. The excess earnings are thereby calculated for each year of a multi-year projection period and discounted to present value. The primary components of this method consist of the customer attrition rate, determination of excess earnings, and an appropriate rate of return.

The following table summarizes the estimated fair values of GeneDx's identifiable intangible assets and their estimated useful lives determined (in million):

	Useful Life (in years)	Estimated Fair Value	Annual Amortization
Trade Names and Trademarks (General and administrative)	17	$ 32.0	$ 1.9
Developed Technology (General and administrative)	9	50.0	5.6
Customer Relationships (Selling and marketing)	20	135.0	6.8
Total		217.0	$ 14.3 e2
Less: Historic GeneDx Intangible Assets		(166.9)	(16.8) e3
Pro forma adjustment		$ 50.1 e1	

e3) Represents adjustment to eliminate the amortization of historic GeneDx intangible assets of $16.8 million.

f) Based on the preliminary purchase price allocations performed, the estimated goodwill of $289.0 million is recognized from the Acquisition resulting the adjustment of $7.0 million. The historic GeneDx goodwill of $282.0 million is eliminated.

g) Represents elimination of GeneDx's historical additional paid-in capital and adjustment to Sema4's common stock and additional paid capital for the stock considerations and PIPE financing (in millions).

Additional paid-in capital		Amount
Elimination of GeneDx historical additional paid-in capital	$	(660.5)
Stock consideration a2)		323.2
PIPE financing a1)		199.9
PIPE financing cost a1)		(10.9)
Total	$	(148.3)

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our financial statements and related notes and other financial information appearing elsewhere in this prospectus. Some of the information contained in this discussion and analysis or set forth elsewhere in this prospectus, including information with respect to our plans and strategy for our business and related financing, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those factors set forth in the "Risk Factors" section of this prospectus, our actual results could differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

We are a patient-centered, health intelligence company with a mission to use artificial intelligence ("AI") and machine learning to enable personalized medicine for all. By leveraging leading data scientists and technology, our platform powers remarkable and unique insights that transform the practice of medicine including how disease is diagnosed, treated, and prevented.

We were established out of Icahn School of Medicine at Mount Sinai ("ISMMS") and commenced operations in June 2017 as a commercial entity that could effectively engage diverse patient populations and health care institutions at scale. We have since established and deployed our comprehensive and integrated genomic and clinical data platform and established a mature diagnostic testing business. We now maintain a database that includes more than 12 million de-identified individual clinical records, many with genomic profiles. We also manage a data asset over 47 petabytes in size, that has been expanding at more than 1 petabyte per month with an accelerating growth rate.

Currently, we derive the majority of our revenue from our diagnostic test solutions. Our diagnostic business generates revenue and engages with healthcare professionals working with patients primarily through our Women's Health and Oncology solutions.

Our Women's Health solutions sequence and analyze an industry-leading number of genes and use interpretive information tools to translate raw sequencing and clinical data efficiently and accurately into digestible clinical reports that guide decision-making by patients and physicians. Our Oncology diagnostic solutions feature both somatic tumor profiling and hereditary cancer screenings, along with a foundational whole exome and whole transcriptome sequencing approach. Our Sema4 Signal Hereditary Cancer solution determines if a patient carries an inherited genetic change that increases the risk of cancer or informs on cancer treatment. We believe our Signal Whole Exome and Transcriptome solution is one of the most comprehensive molecular profiling solutions from a commercial entity to receive New York State approval. Beginning in May of 2020, we also expanded our diagnostic testing services to include testing for the presence of COVID-19, which we intend to discontinue by March 31, 2022.

We have also expanded beyond diagnostic testing to enter into service agreements with third parties to provide diagnostic testing, research, and related data aggregation reporting services. We have established and continue to seek strategic relationships with pharmaceutical and biotech ("Biopharma") companies to enable innovation across the entire drug lifecycle, from next-generation drug discovery and development, to post-market efficacy surveillance, to informing on bioavailability, toxicity, tolerability, and other features critical to drug development.

Factors Affecting Our Performance

We believe several important factors have impacted, and will continue to impact, our performance and results of operations. While each of these areas presents significant opportunities for us, they also pose significant risks and challenges that we must address. See the section titled "*Risk Factors*" for more information.

Number of resulted tests

We historically reported both accessioned and resulted tests as important factors impacting our performance. A test is resulted once the appropriate workflow is completed and details are provided to the ordered patients or healthcare professional for reviews, which corresponds to the timing of our revenue recognition. We believe the number of resulted tests in any period is more important and useful to our investors because it directly correlates with long-term patient relationships and the size of our genomic database. Therefore, we do not plan to report the number of accessioned tests.

Success obtaining and maintaining reimbursement

Our ability to increase the number of billable tests and our revenue therefrom will depend on our success in achieving reimbursement for our tests from third-party payors. Reimbursement by a payor may depend on several factors, including a payor's determination that a test is appropriate, medically necessary, cost-effective, and has received prior authorization. Since each payor makes its own decision as to whether to establish a policy or enter into a contract to provide coverage for our tests, as well as the amount it will reimburse us for a test, seeking these approvals is a time-consuming and costly process.

In cases where we or our partners have established reimbursement rates with third-party payors, we face additional challenges in complying with their procedural requirements for reimbursement. These requirements often vary from payor to payor and are reassessed by third-party payors regularly. As a result, in the past we have needed additional time and resources to comply with the requirements.

We expect to continue to focus our resources on increasing the adoption of, and expanding coverage and reimbursement for, our current and any future tests we may develop or acquire. If we fail to expand and maintain broad adoption of, and coverage and reimbursement for, our tests, our ability to generate revenue and our future business prospects may be adversely affected.

Ability to lower the costs associated with performing our tests

Reducing the costs associated with performing our diagnostic tests is both our focus and a strategic objective. We source, and will continue to source, components of our diagnostic testing workflows from third parties. We also rely upon third-party service providers for data storage and workflow management.

Increasing adoption of our services by existing and new customers

Our performance depends on our ability to retain and broaden the adoption of our services with existing customers as well as our ability to attract new customers. Our success in retaining and gaining new customers is dependent on the market's confidence in our services and the willingness of customers to continue to seek more comprehensive and integrated genomic and clinical data insights.

Investment in platform innovation to support commercial growth

We are seeking to leverage and deploy our Centrellis and Traversa platforms to develop a pipeline of future disease-specific research and diagnostic and therapeutic products and services. We have limited experience in the development or commercialization of clinical or research products in connection with our database and our Centrellis platform.

We operate in a rapidly evolving and highly competitive industry. Our business faces changing technologies, shifting provider and patient needs, and frequent introductions of rival products and services. To compete successfully, we must accurately anticipate technology developments and deliver innovative, relevant, and useful products, services, and technologies on time. As our business evolves, the competitive pressure to innovate will encompass a wider range of products and services. We must continue to invest significant resources in research and development, including investments through acquisitions and partnerships. These investments are critical to the enhancement of our current diagnostics and health information and data science technologies from which existing and new service offerings are derived.

We expect to incur significant expenses to advance these development efforts, but they may not be successful. New potential services may fail at any stage of development and, if we determine that any of our current or future services are unlikely to succeed, we may abandon them without any return on our investment. If we are unsuccessful in developing additional services, our growth potential may be impaired.

Key Performance Indicators

We use the following key financial and operating metrics to evaluate our business and operations, measure our performance, identify trends affecting our business, project our future performance, and make strategic decisions. These key financial and operating metrics should be read in conjunction with the following discussion of our results of operations and financial condition together with our consolidated financial statements and the related notes and other financial information included elsewhere in this prospectus.

The principal focus of our commercial operations is to offer our diagnostic tests through both our direct sales force and laboratory distribution partners. Test volume correlates with genomic database size and long-term patient relationships. Thus, test volumes drive database diversity and enable potential identification of variants of unknown significance and population-specific insights. The number of tests resulted is a key indicator that we use to assess the operational efficiency of our business. Once the appropriate workflow is completed, the test is resulted and details are provided to ordered patients or healthcare professionals for reviews.

During the year ended December 31, 2021, we resulted 709,942 tests in our laboratories, 418,053 tests of which were for COVID-19, compared to the period ended December 31, 2020, in which we resulted approximately 540,407 tests in our laboratories, 332,764 of which were for COVID-19. This 31% increase in resulted volume from 2020 to 2021 largely resulted from newly entered service agreements for COVID-19 testing as well as an increase in non-COVID-19 institutional testing. During the year ended December 31, 2019, we resulted approximately 155,497 tests in our laboratories, none of which were for COVID-19. The 248% increase in resulted volume from 2019 to 2020 largely resulted from newly entered service agreements for COVID-19 testing, offset by a slowdown in the base diagnostic business during the beginning of the COVID-19 pandemic given that many of our customers, including hospitals and clinics, had suspended non-emergency appointments and services.

As discussed above, we no longer report the number of accessioned tests as a key performance indicator because the number of resulted tests more directly correlates with long-term patient relationships and the size of our genomic database.

COVID-19 Impact

The ongoing COVID-19 pandemic has had, and continues to have, an extensive impact on the global health and economic environments since the initial outbreak in March 2020.

Beginning in April 2020, our diagnostic test volumes decreased significantly as compared to the prior year as a result of the COVID-19 pandemic and the related limitations and priorities across the healthcare system. In response, beginning in May 2020, we entered into several service agreements with state governments and healthcare institutions to provide testing for the presence of COVID-19 infection. COVID-19 test volumes grew significantly from the introduction of the service offering through the remainder of 2020 and further increased in 2021. To support the rapid expansion of COVID-19 test volumes, we increased our workforce through both temporary contractors and employees. In addition, while most of our revenues from genetic testing rely upon reimbursements from third party payors, healthcare institutions, and individuals, the majority of our COVID-19 test revenues rely upon reimbursements from state governments and healthcare institutions. In addition, COVID-19 testing yields lower revenues per tests and incurs lower costs to perform each test. We have also experienced a slowdown in receivable collections since the onset of the pandemic, but do not expect those collection trends to continue.

As part of our response to the ongoing COVID-19 pandemic, we have implemented various strategies to mitigate operating risks, reduce costs and improve cash collections. We have made significant advance purchases of test-related inventory in order to reduce the risk of potential business interruptions related to supply chain disruption. We also contracted with third-party vendors to collect and test COVID-19 samples to reduce operating risks related to employee health. Temporary COVID-19 austerity measures included cancellation of the 2020 annual merit

compensation increase, temporary salary reductions from May through July 2020 and deferral of the 401(k) employer match from May through December 2020. The employer match was reinstated in January 2021, and the deferred portion was funded on March 9, 2021. To support our sales employees with commission-based compensation structure, we implemented temporary minimum commissions during the second quarter of 2020. No such minimums were in place in any quarter after the second quarter nor are any such minimums expected to be implemented again in the near term. No employee layoffs were implemented as part of these austerity measures.

As conditions improve, we are focused on overhauling our revenue cycle, and as part of transformational activities hired a Chief Revenue Officer and established a revenue cycle Center of Excellence. As part of our efforts to improve our collection efficiency and overall financial health, we are also undergoing various process transformations within the Order-to-Cash and Procure-to-Pay cycles.

While test volumes have since improved, we continue to experience changes in the mix of tests due to the impact of the COVID-19 and its variants. We anticipate that demand for COVID-19 tests will decrease as vaccines continue to be developed and deployed to the general population. For this reason, we announced in December 2021 that we had decided to discontinue COVID-19 testing services by March 31, 2022 and began notifying our COVID-19 testing solutions customers of this decision. We intend to dedicate all of our efforts and resources to our core mission to transform healthcare by using artificial intelligence to enable the delivery of precision medicine as the standard of care, and do not expect declines for our other revenue streams during 2022. The full extent to which the COVID-19 pandemic will directly or indirectly impact our business, results of operations and financial condition will depend on future developments that are highly uncertain and cannot be accurately predicted, including new information that may emerge concerning COVID-19 or its variants, the actions taken to contain it or treat it and the economic impact on local, regional, national and international markets and supply chains. Therefore, the COVID-19 pandemic could continue to have a material impact on our results of operations, cash flows and financial condition for the foreseeable future.

In March 2020, the Coronavirus Aid, Relief and Economic Security Act (the “CARES Act”) was signed into law which was a stimulus bill that, among other things, provided assistance to qualifying businesses and individuals and included funding for the healthcare system. We received $5.4 million in 2020 as part of the stimulus, comprised of $2.6 million received under the Provider Relief Fund (“PRF”) distribution and $2.8 million received under the Employee Retention Credit (“ERC”) distribution. During 2021, we received an additional $5.6 million under the PRF distribution.

PRF distributions to healthcare providers are not loans and will not be required to be repaid; however, as a condition to receiving these payments, providers must agree to certain terms and conditions and submit sufficient documentation demonstrating that the funds are being used for healthcare-related expenses or lost revenue attributable to the COVID-19 pandemic. We have concluded it is probable that all terms and conditions associated with the PRF distribution have been met. As a result, we recorded the PRF distributions in other income (expense), net in the statements of operations and comprehensive loss during the periods in which we received the distributions.

ERC distributions are refundable tax credits for 50% of qualified wages paid to employees during the pandemic. A company is eligible for the ERC if it has not received a Paycheck Protection Program loan under the Cares Act and (1) its operations have been fully or partially suspended because of COVID-19 or (2) its gross receipts in a calendar quarter in 2020 declined by more than 50% from the same period in 2019. At the time of applying for the ERC, we concluded that it was reasonably possible the eligibility requirements would be met; however, due to a change in circumstances, we are re-evaluating our position. As such, we deferred the recognition of the ERC distribution and recorded the proceeds in other liabilities on the consolidated balance sheets as of December 31, 2021 and 2020.

At this time, we are not certain of the availability, extent or impact of any future relief provided under the CARES Act or other stimulus initiatives.

Recent Developments

On April 29, 2022, we consummated the transactions contemplated by the Merger Agreement, whereby we acquired GeneDx through the Mergers and paid OPKO $150 million of Cash Consideration and issued to OPKO 80

million of Stock Consideration Shares. Concurrently with the Closing, we also consummated the PIPE Investment, issuing 50 million PIPE Shares for aggregate gross proceeds of $200 million.

GeneDx is a patient-centric health information company and leader in delivering clinical genomic answers to an ever-increasing community of patients, families and healthcare providers. With more than 20 years of experience in diagnosing rare disorders and diseases, GeneDx has pioneered panels, exome and whole genome sequencing and has developed a proprietary genomic interpretation and information services platform in support of healthcare partners and patients globally.

Components of Results of Operations

Revenue

We derive the majority of our revenue from diagnostic testing services, which primarily relate to Women's Health, Oncology and COVID-19. We also recognize revenue from collaboration service agreements with Biopharma companies and other third parties pursuant to which we provide diagnostic testing and related data aggregation reporting services. As discussed above, in December 2021, we announced that we decided to discontinue COVID-19 testing services by March 31, 2022 and begun notifying its COVID-19 testing solutions customers of this decision.

We recognize revenue when control of the promised goods or services is transferred to the customer in an amount that reflects the consideration which we expect to be entitled to in exchange for those goods or services.

Diagnostic Test Revenue

We primarily generate revenue from performing diagnostic testing services for three groups of customers: healthcare professionals working with patients with third-party insurance coverage or without third-party insurance coverage or those who elect to self-pay; and institutional clients, such as hospitals, clinics, state governments and reference laboratories. Customers are billed upon delivery of test results. The amount of revenue recognized for diagnostic testing services depends on a number of factors, such as contracted rates with our customers and third-party insurance providers, insurance reimbursement policies, payor mix, historical collection experience, price concessions and other business and economic conditions and trends. To date, the majority of our diagnostic test revenue has been earned from orders received for patients with third-party insurance coverage.

Our ability to increase our diagnostic test revenue will depend on our ability to increase our market penetration, obtain contracted reimbursement coverage from third-party payers, enter into contracts with institutions, and increase our reimbursement rate for tests performed.

Other Revenue

We generate revenue from providing diagnostic testing and related data aggregation reporting services under both short-term and long-term project-based collaboration service agreements with third parties. The terms of these contracts generally include non-refundable upfront payments, which we record as contract liabilities, and variable payments based upon the achievement of certain milestones during the contract term.

With respect to existing collaboration service agreements, our revenue may fluctuate period to period due to the pattern in which we may deliver our services, our ability to achieve milestones, the timing of costs incurred, changes in estimates of total anticipated costs that we expect to incur during the contract period, and other events that may not be within our control. Our ability to increase our revenue will depend on our ability to enter into contracts with third-party partners.

Cost of Services

The cost of services reflect the aggregate costs incurred in performing services. These costs include expenses for reagents and laboratory supplies, personnel-related expenses (comprising salaries and benefits) and stock-based compensation for employees directly involved in revenue generating activities, shipping and handling fees, costs of third-party reference lab testing and phlebotomy services and allocated genetic counseling, facility and IT costs

associated with delivery services. Allocated costs include depreciation of laboratory equipment, facility occupancy, and information technology costs. The cost of services are recorded as the services are performed.

We expect the cost of services to generally increase in line with the anticipated growth in diagnostic testing volume and services we provide under our collaboration service agreements. However, we expect the cost per test to decrease over the long term due to the efficiencies we may gain from improved utilization of our laboratory capacity, automation, and other value engineering initiatives. These expected reductions may be offset by new tests which often have a higher cost per test during the introductory phases before we can gain efficiencies. The cost per test may fluctuate from period to period.

Research and Development Expenses

Research and development expenses represent costs incurred to develop our technology and future test offerings. These costs are principally associated with our efforts to develop the software we use to analyze data and process customer orders. These costs primarily consist of personnel-related expenses (comprising salaries and benefits), stock-based compensation for employees performing research and development, innovation and product development activities, costs of reagents and laboratory supplies, costs of consultants and third-party services, equipment and related depreciation expenses, non-capitalizable software development costs, research funding to our research partners as part of research and development agreements and allocated facility and information technology costs associated with genomics medical research. Research and development costs are generally expensed as incurred and certain non-refundable advanced payments provided to our research partners are expensed as the related activities are performed.

We generally expect our research and development expenses to continue to increase as we innovate and expand the application of our platforms. However, we expect research and development expenses to decrease as a percentage of revenue in the long term, although the percentage may fluctuate from period to period due to the timing and extent of our development and commercialization efforts and fluctuations in our compensation-related charges.

Selling and Marketing Expenses

Selling and marketing expenses primarily consist of personnel-related expenses (comprising salaries, and benefits) and stock-based compensation for employees performing commercial sales, account management, marketing, and allocation of genetic counseling services related to medical education. Selling and marketing costs are expensed as incurred.

We generally expect our selling and marketing expenses will continue to increase in absolute dollars as we expand our commercial sales and marketing and counseling teams and increase marketing activities. However, we expect selling and marketing expenses to decrease as a percentage of revenue in the long term, subject to fluctuations from period to period due to the timing and magnitude of these expenses.

General and Administrative Expenses

General and administrative expenses primarily consist of personnel-related expenses (comprising salaries and benefits) and stock-based compensation for employees in executive leadership, legal, finance and accounting, human resources, information technology, strategy and other administrative functions. In addition, these expenses include office occupancy and information technology costs. General and administrative costs are expensed as incurred.

We generally expect our general and administrative expenses to continue to increase in absolute dollars as we increase headcount and incur costs associated with operating as a public company, including expenses related to legal, accounting, and regulatory matters; maintaining compliance with requirements of the Nasdaq and of the SEC; director and officer insurance premiums and investor relations. We expect these expenses to decrease as a percentage of revenue in the long term as revenue increases, although the percentage may fluctuate from period to period due to fluctuations in our compensation-related charges.

Related Party Expenses

Related party expenses primarily consist of amounts incurred in connection with transactions occurred with ISMMS for expenses under our transition services agreement ("TSA") with ISMMS which expired at the end of the first quarter of 2021, and other service agreements. Additional information can be found in our consolidated financial statements in Note 7, "*Related Party Transactions*" included elsewhere in this prospectus.

We generally expect related party expenses to decrease as we establish our own internal and external resources to fulfill the administrative and other services we have historically procured from ISMMS.

Interest Income

Interest income primarily consists of interest earned on money market funds.

Interest Expense

Interest expense consists of interest costs related to our capital leases and our long-term debt arrangements, including unused line fee and the amortization of deferred transaction costs related to the loan and security agreement entered into with Silicon Valley Bank to provide a $125 million revolving credit facility described elsewhere in this prospectus.

Other Income, Net

Other income, net primarily consists of funding received under the CARES Act. We recognized $2.6 million of the $5.4 million of funding received under the CARES Act as other income, net on the statements of operations and comprehensive loss during the year ended December 31, 2020. We recognized $5.6 million of additional funding received under the CARES Act during the year ended December 31, 2021 and the amount is included in other income, net for the year ended December 31, 2021. In addition, the loss incurred due to early payment penalties recognized upon extinguishment of debt of $0.3 million is included in other income, net.

Results of Operations

A discussion regarding our financial condition and results of consolidated operations for the year ended December 31, 2021 compared to the year ended December 31, 2020 and for the year ended December 31, 2020 compared to the year ended December 31, 2019 is presented below.

Certain expenses were previously misclassified as cost of services and they are now reported as selling and marketing. The adjustment is reflected in the amounts reported below for years ended December 31, 2021, 2020 and 2019. Refer to Note 2, "*Summary of Significant Accounting Policies*" to our consolidated financial statements for further information included elsewhere in this prospectus.

Comparison of the Years Ended December 31, 2021 and 2020

The following table sets forth our results of operations for the periods presented:

	Year Ended December 31,	
	2021	2020 (Restated)
	(in thousands)	
Revenue		
Diagnostic test revenue	$ 205,100	$ 175,351
Other revenue	7,095	3,971
Total revenue	212,195	179,322
Cost of services	228,797	175,296
Gross (loss) profit	(16,602)	4,026
Research and development	105,162	72,700
Selling and marketing	112,738	63,183
General and administrative	205,988	100,742
Related party expenses	5,659	9,395
Loss from operations	(446,149)	(241,994)
Other income (expense):		
Change in fair market value of warrant and earn-out contingent liabilities	198,401	—
Interest income	79	506
Interest expense	(2,835)	(2,474)
Other income, net	5,114	2,622
Total other income (expense), net	200,759	654
Loss before income taxes	(245,390)	(241,340)
Income tax provision	—	—
Net loss and comprehensive loss	(245,390)	(241,340)
Redeemable convertible preferred stock dividends	—	—
Net loss attributable to common stockholders	$ (245,390)	$ (241,340)

Revenue

	Year Ended December 31,		Change 2020 to 2021	
	2021	2020	$	%
	(dollars in thousands)			
Diagnostic test revenue	$ 205,100	$ 175,351	$ 29,749	17 %
Other revenue	7,095	3,971	3,124	79 %
Total revenue	$ 212,195	$ 179,322	$ 32,873	18 %

Total revenue increased by $32.9 million, or 18%, to $212.2 million for the year ended December 31, 2021, from $179.3 million for the year ended December 31, 2020.

Diagnostic test revenue increased by $29.7 million, or 17%, to $205.1 million for the year ended December 31, 2021, from $175.4 million for the year ended December 31, 2020. The increase was primarily attributable to a 135% increase in oncology test volumes, a 38% increase in women's health test volumes and an overall increase in volumes of 31%, partially offset by the change in the mix of tests performed and reduced reimbursement rates. COVID-19 testing was introduced in May of 2020, which had a lower impact on total test volume during the year ended December 31, 2020, compared to the year ended December 31, 2021 (with COVID-19 test volumes growing 26% year over year) .

Other revenue increased by $3.1 million, or 79%, to $7.1 million for the year ended December 31, 2021, from $4.0 million for the year ended December 31, 2020. The increase was primarily attributable to growth in collaboration service activities due to the execution of third-party contracts which generated $3.7 million more in revenues in 2021 compared to 2020. This was partially offset by reduced revenues recognized related to an existing third-party contract by $0.8 million.

Cost of Services (2020 amount restated)

	Year Ended December 31,		Change 2020 to 2021	
	2021	2020	$	%
	(dollars in thousands)			
Cost of services	$ 228,797	$ 175,296	$ 53,501	31 %

Cost of services increased by $53.5 million, or 31%, to $228.8 million for the year ended December 31, 2021, from $175.3 million for the year ended December 31, 2020. The increase was primarily driven by the following cost components: a $9.7 million increase in stock-based compensation expense primarily driven by the increase in fair value of the liability-classified awards until July 22, 2021, the closing date of our Business Combination and an increase in the number of stock-based compensation awards granted; a $7.9 million increase in personnel-related expenses driven by an increase in average headcount; a $8.2 million increase in consulting and outside service costs driven by temporary hires contracted to perform COVID-19 testing activities; a $5.0 million increase in logistical expenses and other lab services as a result of an increase in operations; a $9.6 million increase in reagents and laboratory supplies expense due primarily to the 32% increase in volumes; a $2.4 million increase in software expenses due to increased cloud storage and expanded computing capacity requirements from New York City to Stamford, Connecticut for testing data; a $2.1 million increase in the inventory obsolescence reserve for expiring COVID-19 and certain carrier screening testing kits; a $2.2 million increase in occupancy expenses; a $5.1 million increase in depreciation expenses in connection with our laboratory move at the end of 2020, with production activities commencing at the Stamford facility in the first quarter of 2021 and a $1.3 million increase in equipment maintenance and general office expenses.

Research and Development

	Year Ended December 31,		Change 2020 to 2021	
	2021	2020	$	%
	(dollars in thousands)			
Research and development	$ 105,162	$ 72,700	$ 32,462	45 %

Research and development expenses increased by $32.5 million, or 45%, to $105.2 million for the year ended December 31, 2021, from $72.7 million for the year ended December 31, 2020. The increase was primarily attributable to the following cost components: a $20.5 million increase in stock-based compensation expense driven by the increase in fair value of the liability-classified awards until the closing date of the Business Combination and an increase in the number of stock-based compensation awards granted; a $0.9 million increase in software expenses due to increased cloud storage; a $0.3 million increase in personnel-related expenses driven by an increase in average headcount a $4.8 million increase in depreciation expenses; a $3.6 million increase in expenses for reagents, laboratory supplies and laboratory software for research and development; and a $2.2 million increase in consulting fees.

Selling and Marketing (2020 amount restated)

	Year Ended December 31,		Change 2020 to 2021	
	2021	2020	$	%
	(dollars in thousands)			
Selling and marketing	$ 112,738	$ 63,183	$ 49,555	78 %

Selling and marketing expenses increased by $49.6 million, or 78%, to $112.7 million for the year ended December 31, 2021, from $63.2 million for the year ended December 31, 2020. The increase was primarily attributable to the following cost components: an $17.3 million increase in stock-based compensation expense driven by the increase in fair value of the liability-classified awards until the closing date of the Business Combination and an increase in the number of stock-based compensation awards granted; a $19.6 million increase in personnel-related expenses driven by increased headcount; a $4.1 million increase in consulting service expenses mainly to support revenue cycle transformation initiatives; a $3.2 million increase in information technology-related expenses; a $1.8 million increase in other administrative and office expenses; a $2.0 million increase in travel and business expenses due to the lifting of COVID-19 travel restrictions and a $1.5 million increase in counseling services.

General and Administrative

	Year Ended December 31,		Change 2020 to 2021	
	2021	2020	$	%
	(dollars in thousands)			
General and administrative	$ 205,988	$ 100,742	$ 105,246	104 %

General and administrative expenses increased by $105.3 million, or 104%, to $206.0 million for the year ended December 31, 2021, from $100.7 million for the year ended December 31, 2020. The increase was primarily attributable to the following cost components: an $51.7 million increase in stock-based compensation expense driven by the increase in fair value of the liability-classified awards until the closing date of the Business Combination and an increase in the number of stock-based compensation awards granted; a $21.1 million increase in professional services incurred mainly in connection with the Business Combination transaction; a $20.0 million increase in personnel-related expenses driven by an increase in average headcount including executive headcount; a $5.0 million increase in software expenses due to increased cloud storage requirements; a $7.0 million increase in insurance expenses driven by the commencement of director's insurance policy; and a $0.8 million increase in capital taxes as a result of the Business Combination transaction. These increases were partially offset by a $0.4 million decrease in occupancy and depreciation expenses in connection with our laboratory move from New York City to Stamford, Connecticut.

Related Party Expenses

	Year Ended December 31,		Change 2020 to 2021	
	2021	2020	$	%
	(dollars in thousands)			
Related party expenses	$ 5,659	$ 9,395	$ (3,736)	(40)%

Related party expenses decreased by $3.7 million, or 40%, to $5.7 million for the year ended December 31, 2021, from $9.4 million for the year ended December 31, 2020. The decrease was primarily attributable to the following cost components: a $3.2 million decrease in rent and facility expenses driven by a reduction of office and lab space leased from ISMMS pursuant to the TSA which ended in the first quarter of 2021; and a $0.5 million decrease in fees associated with information technology support pursuant to the TSA with ISMMS.

Interest Income

	Year Ended December 31,		Change 2020 to 2021	
	2021	2020	$	%
	(dollars in thousands)			
Interest income	$ 79	$ 506	$ (427)	(84)%

Interest income decreased by $0.4 million, or 84%, to $0.1 million for the year ended December 31, 2021, from $0.5 million for the year ended December 31, 2020. The decrease was due to declines in interest rates on money market fund accounts.

Interest Expense

	Year Ended December 31,		Change 2020 to 2021	
	2021	2020	$	%
	(dollars in thousands)			
Interest expense	$ 2,835	$ 2,474	$ 361	15 %

Interest expense increased by $0.4 million, or 15%, to $2.8 million for the year ended December 31, 2021, from $2.5 million for the year ended December 31, 2020. The increase was driven by new capital lease obligations for our Stamford laboratory facility which commenced operations in 2021 as well as the unused line fee and the amortization of deferred transaction costs related to the loan and security agreement entered into with Silicon Valley Bank at the end of 2021.

Other Income, Net

	Year Ended December 31,		Change 2020 to 2021	
	2021	2020	$	%
	(dollars in thousands)			
Other income, net	$ 5,114	$ 2,622	$ 2,492	95 %

Other income, net increased by $2.5 million or 95% to $5.1 million for the year ended December 31, 2021, from $2.6 million for the year ended December 31, 2020. The increase in other income, net was primarily attributable to the $5.6 million in funding that we received and recognized as other income under the CARES Act in the first quarter of 2021, partially offset by $0.3 million in penalties related to an early repayment of debt. This is compared to $2.6 million in funding received in 2020.

Comparison of the Years Ended December 31, 2020 and 2019

The following table sets forth our results of operations for the periods presented:

	Year Ended December 31,	
	2020 (Restated)	2019 (Restated)
	(in thousands)	
Revenue		
Diagnostic test revenue	$ 175,351	$ 191,667
Other revenue	3,971	4,507
Total revenue	179,322	196,174
Cost of services	175,296	113,389
Gross profit	4,026	82,785
Research and development	72,700	34,910
Selling and marketing	63,183	39,352
General and administrative	100,742	29,484
Related party expenses	9,395	9,452
Loss from operations	(241,994)	(30,413)
Other income (expense):		
Interest income	506	988
Interest expense	(2,474)	(783)
Other income, net	2,622	504
Total other income, net	654	709
Loss before income taxes	(241,340)	(29,704)
Income tax provision	—	—
Net loss and comprehensive loss	(241,340)	(29,704)
Redeemable convertible preferred stock dividends	—	3,039
Net loss attributable to common stockholders	$ (241,340)	$ (32,743)

Revenue

			Change 2019 to 2020	
	2020	2019	$	%
Diagnostic test revenue	$ 175,351	$ 191,667	$ (16,316)	(9)%
Other revenue	3,971	4,507	(536)	(12)%
Total revenue	$ 179,322	$ 196,174	$ (16,852)	(9)%

Total revenue decreased by $16.9 million, or 9%, to $179.3 million for the year ended December 31, 2020, from $196.2 million for the year ended December 31, 2019.

Diagnostic test revenue decreased by $16.3 million, or 9%, to $175.4 million for the year ended December 31, 2020, from $191.7 million for the year ended December 31, 2019. The decrease was primarily attributable to a change in the mix of tests performed coupled with reduced reimbursement rates. The Company experienced an increase in volumes of 248%, primarily driven by the introduction of COVID-19 testing in May 2020. Despite these increased volumes, diagnostic test revenue decreased due to lower pricing on COVID-19 testing relative to other diagnostic tests and an overall decrease in average pricing on Women's Health and Oncology testing.

Other revenue decreased by $0.5 million, or 12%, to $4.0 million for the year ended December 31, 2020, from $4.5 million for the year ended December 31, 2019. The decrease was primarily attributable to the completion of one significant third-party contract in 2019 and the completion of one significant contract with ISMMS in early 2020. This decrease was partially offset by growth in collaboration service activities due to the execution of two new third-party contracts in 2020. Other revenues are expected to continue to be driven predominately by services performed pursuant to contracts with third parties.

Cost of Services (2020 and 2019 amounts restated)

			Change	
			2019 to 2020	
	2020	2019	$	%
Cost of services	$ 175,296	$ 113,389	$ 61,907	55 %

Cost of services increased by $61.9 million, or 55%, to $175.3 million for the year ended December 31, 2020, from $113.4 million for the year ended December 31, 2019. The increase was primarily attributable to the following cost components: a $17.5 million increase in reagents and laboratory supplies expense due primarily to the 248% increase in resulted volumes coupled with the lower per test cost of performing COVID-19 tests relative to our other tests; a $12.2 million increase in stock-based compensation expenses primarily driven by the increase in fair value of the liability-classified awards; an $11.1 million increase in personnel-related expenses driven by an increase in average headcount, partially offset by COVID-19 austerity measures; a $6.4 million increase in third party reference laboratory expenses due to an increase in tests performed by such third parties; a $4.6 million increase in expenses for other services such as genetic counseling, shipping and phlebotomy services; a $4.4 million increase in depreciation and amortization expenses driven by laboratory sequencing equipment acquired in 2020 and an increase in capitalized software as compared to the prior year; a $3.6 million increase in outside labor costs driven by temporary hires contracted in 2020 to perform COVID-19 testing activities as well as an increase in consultants supporting collaboration services; a $0.2 million increase in software expenses due to increased cloud storage and expanded computing capacity requirements for testing data; a $1.3 million increase in equipment-related expenses, including maintenance expenses on existing equipment and purchases of minor equipment in 2020; and a $0.5 million increase in occupancy costs.

Research and Development

			Change	
			2019 to 2020	
	2020	2019	$	%
Research and development	$ 72,700	$ 34,910	$ 37,790	108 %

Research and development expense increased by $37.8 million, or 108%, to $72.7 million for the year ended December 31, 2020, from $34.9 million for the year ended December 31, 2019. The increase was primarily attributable to the following cost components: a $25.4 million increase in stock-based compensation expenses primarily due to an increase in fair value of the liability-classified awards and an increase in the number of stock-based compensation awards granted; a $9.3 million increase in personnel-related expenses driven by increased average headcount and retention bonuses offered to employees impacted by the relocation of our New York laboratory in December of 2020, partially offset by COVID-19 austerity measures; a $1.7 million increase in expenses for reagents, laboratory supplies and laboratory software for research and development use; and a $1.1 million increase in consulting and outside services, primarily due to an increase in the number of, and required investment in, research and development studies.

Selling and Marketing (2020 and 2019 amounts restated)

			Change 2019 to 2020	
	2020	2019	$	%
Selling and marketing	$ 63,183	$ 39,352	$ 23,831	61 %

Selling and marketing expense increased by $23.8 million, or 61%, to $63.2 million for the year ended December 31, 2020, from $39.4 million for the year ended December 31, 2019. The increase was primarily attributable to the following cost components: a $11.4 million increase in personnel-related expenses driven by an increase in average headcount, partially offset by COVID-19 austerity measures; a $11.1 million increase in stock-based compensation expenses primarily due to an increase in the fair value of the liability-classified awards and an increase in the number of outstanding awards due to increase in the number of stock-based compensation awards granted; a $1.5 million increase in commissions due to an increase in sales employee headcount and the implementation of temporary minimum commissions offered to sales employees in response to the COVID-19 pandemic; a $1.0 million increase in other lab service; and a $0.6 million increase in software expenses due to increased cloud storage requirements. These increases were partially offset by a $1.8 million decrease in travel and business expenses due to reduced business travel during the COVID-19 pandemic.

General and Administrative

			Change 2019 to 2020	
	2020	2019	$	%
General and administrative	$ 100,742	$ 29,484	$ 71,258	242 %

General and administrative expense increased by $71.3 million, or 242%, to $100.7 million for the year ended December 31, 2020, from $29.5 million for the year ended December 31, 2019. The increase was primarily attributable to the following cost components: a $66.0 million increase in stock-based compensation expenses due to an increase in the fair value of the liability-classified awards and an increase in the number of outstanding awards due to increase in the number of stock-based compensation awards granted; a $1.4 million increase in occupancy expenses due to the execution of additional third party leases; and a $1.3 million increase in personnel-related expenses due to an increase in general and administrative headcount, partially offset by COVID-19 austerity measures.

Related Party Expenses

			Change 2019 to 2020	
	2020	2019	$	%
Related party expenses	$ 9,395	$ 9,452	$ (57)	(1)%

Related party expenses decreased by $0.1 million, or 0.6%, to $9.4 million for the year ended December 31, 2020, from $9.5 million for the year ended December 31, 2019. The decrease was primarily attributable to a $1.7 million decrease in service fees associated with a reduction of leased ISMMS employees, a $1.0 million decrease in fees associated with information technology support pursuant to the TSA with ISMMS and decreases in other various services provided by ISMMS pursuant to the TSA and service agreements. These decreases were partially offset by a $2.0 million increase in rent and facility expenses driven by additional office and lab space leased from ISMMS pursuant to the transition services agreement and a $0.5 million increase in consultant costs driven by an increase in research and development efforts performed by ISMMS under consulting agreements.

Interest Income

			Change	
			2019 to 2020	
	2020	2019	$	%
Interest income	$ 506	$ 988	$ (482)	(49)%

Interest income decreased by $0.5 million, or 49%, to $0.5 million for the year ended December 31, 2020, from $1.0 million for the year ended December 31, 2019. The decrease was due to declines in interest rates on money market deposit accounts and reductions in the average cash balances held throughout the year in these interest-bearing accounts.

Interest Expense

			Change	
			2019 to 2020	
	2020	2019	$	%
Interest expense	$ 2,474	$ 783	$ 1,691	216 %

Interest expense increased by $1.7 million, or 216%, to $2.5 million for the year ended December 31, 2020, from $0.8 million for the year ended December 31, 2019. The increase was driven by an increase in capital lease obligations, an increase in our interest-bearing loan balance with the Connecticut Department of Economic and Community Development (the "DECD") and a new interest-bearing bank loan executed in 2020.

Other Income, Net

			Change	
			2019 to 2020	
	2020	2019	$	%
Other income, net	$ 2,622	$ 504	$ 2,118	420 %

Other income, net increased by $2.1 million or 420% to $2.6 million for the year ended December 31, 2020, from $0.5 million for the year ended December 31, 2019. The increase in other income, net was primarily attributable to $2.6 million in funding that we received under the CARES Act.

Reconciliation of Non-GAAP Financial Measures

In addition to our results determined in accordance with GAAP, we believe the following non-GAAP measures are useful in evaluating our operating performance. We use the following non-GAAP financial information to evaluate our ongoing operations, as a component in determining employee bonus compensation, and for internal planning and forecasting purposes. We believe that non-GAAP financial information, when taken collectively, may be helpful to investors because it provides consistency and comparability with past financial performance. However, non-GAAP financial information is presented for supplemental informational purposes only and should not be considered in isolation or as a substitute for financial information presented in accordance with GAAP. In addition, other companies, including companies in our industry, may calculate similarly-titled non-GAAP measures differently or may use other measures to evaluate their performance, all of which could reduce the usefulness of our non-GAAP financial measures as tools for comparison. A reconciliation is provided below for each non-GAAP financial measure to the most directly comparable financial measure stated in accordance with GAAP. Investors are encouraged to review the related GAAP financial measures and the reconciliation of these non-GAAP financial

measures to their most directly comparable GAAP financial measures, and not to rely on any single financial measure to evaluate our business.

Non-GAAP financial measures have limitations as analytical tools and you should not consider them in isolation, or as substitutes for analysis of our results as reported under GAAP. We may in the future incur expenses similar to the adjustments in the presentation of Non-GAAP financial measures. Other limitations include that Non-GAAP financial measures do not reflect:

- all expenditures or future requirements for capital expenditures or contractual commitments;
- changes in our working capital needs;
- provision for income taxes, which may be a necessary element of our costs and ability to operate;
- the costs of replacing the assets being depreciated, which will often have to be replaced in the future;
- the non-cash component of employee compensation expense; and
- the impact of earnings or charges resulting from matters we consider not to be reflective, on a recurring basis, of our ongoing operations

Adjusted Gross Profit and Adjusted Gross Margin

Adjusted Gross Profit is a non-GAAP financial measure that we define as revenue less cost of services, excluding stock-based compensation expense, labor costs due to our move, and COVID-19 costs. We define Adjusted Gross Margin as our Adjusted Gross Profit divided by our revenue. We believe these non-GAAP financial measures are useful in evaluating our operating performance compared to that of other companies in our industry, as these metrics generally eliminate the effects of certain items that may vary from company to company for reasons unrelated to overall operating performance.

The following is a reconciliation of revenue to our Adjusted Gross Profit and Adjusted Gross Margin for the years ended December 31, 2021, 2020 and 2019 (in thousands):

	Year Ended December 31,		
	2021	2020 (Restated)	2019 (Restated)
Revenue	$ 212,195	$ 179,322	$ 196,174
Cost of services	228,797	175,296	113,389
Gross (Loss) Profit	**(16,602)**	**4,026**	**82,785**
	(8)%	2 %	42 %
Add:			
Stock-based compensation expense	$ 22,567	12,942	710
Labor costs due to laboratory move [(1)]	—	16,391	—
COVID-19 costs [(2)]	—	3,179	—
Adjusted Gross Profit	**$ 5,965**	**$ 36,538**	**$ 83,495**
Adjusted Gross Margin	3 %	20 %	43 %

(1) Represents labor costs in respect of laboratory employees' time spent to support our laboratory move from New York City to Stamford, Connecticut in 2020. During the move, our laboratory employees dedicated their time to re-validating and re-establishing instruments and equipment, rebuilding interface, obtaining a CLIA license, and other tasks to make sure the move was done correctly. For GAAP purposes we included these activities in Cost of Services. However, as the laboratory move and effort spent by our employees are one-time activities, we adjusted our Gross Profit to reflect management's view of our normal operations.

(2) Represents labor costs in respect laboratory employees' downtime. During the second quarter of 2020, we did not reduce the workforce in our laboratory due to the COVID-19 pandemic. However, we suffered significantly due to the decrease in volume in Women's Health and other products. Accordingly, we have adjusted our Gross Profit to reflect the management-assessed impact from the decrease in productivity of existing laboratory employees due to the COVID-19 pandemic in the second quarter of 2020.

Adjusted EBITDA

Adjusted EBITDA is a non-GAAP financial measure that we define as net loss adjusted for interest expense (income), net, depreciation and amortization, stock-based compensation expenses, transaction costs, other (income) expense, net, COVID-19 costs and change in fair market value of warrant and earn-out contingent liabilities and. We believe Adjusted EBITDA is useful in evaluating our operating performance compared to that of other companies in our industry, as this metric generally eliminates the effects of certain factors that may vary from company to company for reasons unrelated to overall operating performance.

The following is a reconciliation of our net loss to Adjusted EBITDA for the years ended December 31, 2021, 2020, and 2019 (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Net loss	$ (245,390)	$ (241,340)	$ (29,704)
Interest expense (income), net [(1)]	2,756	1,968	(205)
Depreciation and amortization	21,807	11,734	6,407
Stock-based compensation expense	219,421	120,231	5,482
Transaction costs [(2)]	5,496	—	—
Other (income) expense, net [(3)]	(5,291)	(2,622)	(504)
COVID-19 costs [(4)]	—	3,179	—
Change in fair market value of warrant and earn-out contingent liabilities [(5)]	(198,401)	—	—
Adjusted EBITDA	$ (199,602)	$ (106,850)	$ (18,524)

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(1) Represents the total of interest expense related to our capital leases and interest-bearing loans and interest income on money market funds.
(2) Represents professional service costs incurred in connection with pursuing the Business Combination that did not meet the requirement for capitalization.
(3) For fiscal year 2020 and 2021, primarily consists of funding received under the CARES Act Provider Relief Fund.
(4) Represents labor costs in respect laboratory employees' downtime. During the second quarter of 2020, we did not reduce the workforce in our laboratory due to the COVID-19 pandemic. However, we suffered significantly due to the decrease in volume in Women's Health and other products. Accordingly, we have adjusted our Gross Profit to reflect the management-assessed impact from the decrease in productivity of existing laboratory employees due to the COVID-19 pandemic in the second quarter of 2020.
(5) For the year ended December 31, 2021, represents the change in fair market value of the liabilities associated with our public warrants, private placement warrants and the earn-out shares issuable under the terms of the Prior Merger Agreement.

Liquidity and Capital Resources

On July 22, 2021, we completed the Business Combination, consummated the Prior PIPE Investment and received net cash proceeds of $510 million. Management determined that the cash proceeds received from the Business Combination provides us with sufficient liquidity to meet our obligations for at least twelve months from the date of the filing of our Annual Report on Form 10-K for the year ended December 31, 2021.

Furthermore, on November 15, 2021, we entered into a loan and security agreement (the "SVB Agreement") with Silicon Valley Bank ("SVB"), whereby SVB agreed to provide a $125 million revolving credit facility with a maturity date of November 15, 2024. No amounts were drawn as of December 31, 2021. Advances under the SVB Agreement will bear interest at a floating rate per annum equal to the greater of (1) 4.00% and (2) the prime rate plus an applicable margin. In addition, on April 29, 2022, we consummated the PIPE Investment, issuing 50 million PIPE Shares for aggregate gross proceeds of $200 million, in connection with the Closing of the Acquisition.

Accordingly, the consolidated financial statements included elsewhere in this prospectus have been prepared on a basis that assumes we will continue as a going concern and which contemplates the realization of assets and satisfaction of liabilities and commitments in the ordinary course of business. Nevertheless, we may also seek additional funding in the future through the sale of common or preferred equity or convertible debt securities, the entry into other credit facilities or another form of third-party funding or by seeking other debt financing.

Material Cash Requirements for Known Contractual Obligations and Commitments

The following is a description of commitments for known and reasonably likely cash requirements as of December 31, 2021 and December 31, 2020. We anticipate fulfilling such commitments with our existing cash and cash equivalents, which amounted to $400.6 million and $108.1 million as of December 31, 2021 and December 31, 2020, respectively, or through additional capital raised to finance our operations.

Our future minimum payments under non-cancellable operating lease and capital lease agreements were $68.3 and $65.6 million, respectively as of December 31, 2021. The timing of these future payments, by year, can be found in our consolidated financial statements in Note 9, *"Commitments and Contingencies,"* included elsewhere within this prospectus.

Our future contractual purchase commitments were $23.1 million as of December 31, 2021. The timing of these future payments, by year, can be found in our consolidated financial statements in Note 9, *"Commitments and Contingencies,"* included elsewhere within this prospectus.

Cash Flows

	Year Ended December 31,		
	2021	2020	2019
	(in thousands)		
Net cash used in operating activities	$ (190,434)	$ (93,128)	$ (18,728)
Net cash used in investing activities	(20,786)	(31,974)	(15,456)
Net cash provided by financing activities	493,729	129,056	148,012

Operating Activities

Net cash used in operating activities during the year ended December 31, 2021 was $190.4 million, which was primarily attributable to a net loss of $245.4 million and a change in fair value of the warrant and earn-out contingent liabilities of $198.4 million, partially offset by non-cash depreciation and amortization of $21.8 million, non-cash stock-based compensation expense of $219.4 million, and a reserve against obsolete inventory of $2.1 million. The net change in our operating assets and liabilities primarily reflected a $5.5 million decrease in accounts receivable due to a decrease in institutional customer receivables which is in line with the respective revenue stream, a $10.6 million increase in inventories driven by a higher volume of purchases to support increasing testing volumes, a $14.3 million increase in prepaid expenses and other current assets mainly driven by new insurance policy premiums paid during the year, a $25.9 million increase in accounts payable and accrued expenses due to additional volume in the fourth quarter related to COVID-19 testing, resulting in increased related accruals and extended payment terms for large vendors, and a $3.2 million increase in other current liabilities mainly driven increased bonus accruals.

Net cash used in operating activities during the year ended December 31, 2020 was $93.1 million, which was primarily attributable to a net loss of $241.3 million, partially offset by non-cash depreciation and amortization of $11.7 million, non-cash stock-based compensation expense of $120.2 million and a net change in our operating assets and liabilities of $13.8 million. The net change in our operating assets and liabilities primarily reflected an increase in accounts receivable of $10.6 million driven by a slowdown in collections due to the COVID-19 pandemic, a $9.0 million increase in inventories in preparation for the move of certain laboratory operations to a new location in December 2020, an increase in accounts payable and accrued expenses of $14.8 million due to timing of vendor payments and increased spending during the year related to COVID-19 diagnostic testing and a $16.0 million increase in other current liabilities driven by higher personnel-related accruals due to increased headcount at 2020 year-end as compared to 2019 year-end, as well as an increase in accrued payroll taxes due to the deferral of U.S. payroll taxes as part of the CARES Act.

Net cash used in operating activities during the year ended December 31, 2019 was $18.7 million, which was primarily attributable to a net loss of $29.7 million and a net change in our operating assets and liabilities of $0.7 million, partially offset by non-cash depreciation and amortization of $6.4 million and non-cash stock-based

compensation expense of $5.5 million. The net change in our operating assets and liabilities primarily reflected an increase in accounts receivable of $4.6 million driven by increase in testing volumes and billings, an $8.0 million increase in inventories driven by anticipated future growth due to a year-over-year increase in testing volumes for the year ended December 31, 2019 as compared to the year ended December 31, 2018, a $4.4 million increase in other assets due to security deposits on certain office and laboratory locations, an increase in accounts payable and accrued expenses of $12.8 million due to increased operating expenditures in line with the growth of the business and a $4.5 million increase in other current liabilities driven by higher personnel-related accruals due to increased headcount at 2019 year-end as compared to 2018 year-end.

Investing Activities

Net cash used in investing activities during the year ended December 31, 2021 was $20.8 million, which was attributable to $9.4 million in purchases of property and equipment and $11.4 million of costs related to development of internal-use software assets.

Net cash used in investing activities during the year ended December 31, 2020 was $32.0 million, which was attributable to $24.1 million in purchases of property and equipment and $7.9 million of costs related to development of internal-use software assets.

Net cash used in investing activities during the year ended December 31, 2019 was $15.4 million, which was attributable to $11.9 million in purchases of property and equipment and $3.5 million of costs related to development of internal-use software assets.

Financing Activities

Net cash provided by financing activities during the year ended December 31, 2021 was $493.7 million, which was attributable to the consummation of our Business Combination including: $350.0 million from the Prior PIPE Investment proceeds; $442.7 million from an equity infusion from the Business Combination, net of redemptions; offset by $230.7 million in the cash payments to certain Legacy Sema4 stockholders; payment of transaction costs of $51.8 million; and $3.8 million of stock appreciate rights pay-outs. These amounts were further offset by an $8.7 million repayment of long-term debt and $3.7 million of capital lease principal payments.

Net cash provided by financing activities during the year ended December 31, 2020 was $129.0 million, which was primarily attributable to $117.3 million in net cash proceeds from the issuance of our Series C redeemable convertible preferred stock and $15.9 million in net cash proceeds from the issuance of long-term debt. These increases were partially offset by $4.0 million in principal payments on our capital lease obligations and $0.2 million in principal payments on our long-term debt obligations.

Net cash provided by financing activities during the year ended December 31, 2019 was $148.0 million, which was attributable to $118.8 million in net cash proceeds from the issuance of our Series B redeemable convertible preferred stock and $30.9 million in capital contributions from ISMMS, partially offset by $1.7 million in principal payments on our capital lease obligations.

Critical Accounting Policies and Estimates

We have prepared our consolidated financial statements in accordance with GAAP. Our preparation of these consolidated financial statements requires us to make estimates, assumptions and judgments that affect the reported amounts of assets, liabilities and related disclosures at the date of the financial statements, as well as revenue and expense recorded during the reporting periods. We evaluate our estimates and judgments on an ongoing basis. We base our estimates on historical experience and or other relevant assumptions that we believe to be reasonable under the circumstances. Actual results may differ from these estimates under different assumptions or conditions.

See Note 2, "*Summary of Significant Accounting Policies*" to our consolidated financial statements for further discussion on our accounting policies. We have identified below our accounting policies that we believe could potentially generate materially different results if we were to change underlying assumptions, estimates and/or

judgments. Although actual results may differ from those estimates, we believe the estimates are reasonable and appropriate.

Revenue Recognition

We recognize revenue when, or as, performance obligations under the terms of a contract are satisfied, which occurs when control of the promised products or services are transferred to a customer. Revenue is measured as the amount of consideration we expect to receive in exchange for transferring products or services to a customer. Our contracts require significant judgments in determining the transaction price and satisfying performance obligations.

Diagnostic test revenue

We estimate a transaction price in arrangements with third-party insurance payors based on historical collection experience, contractual provisions and insurance reimbursement policies, payor mix, and other relevant information for applicable payor portfolios. The portfolio approach is used as a practical expedient to account for categories of diagnostic test contracts as collective groups rather than on an individual contract basis. Management believes that revenue recognized by utilizing the portfolio approach approximates the revenue that would have been recognized if an individual contract approach was used. For orders received for self-pay patients, we determine a transaction price associated with services rendered in consideration of implicit price concessions that are granted to such orders. The estimates for implicit price concessions require significant judgment and are based upon management's assessment of expected net collections, business and economic conditions, historical trends, trends in federal, state and private employer health care coverage and other collection indicators. For institutional clients, the customer is the institution. We determine a transaction price associated with services rendered in accordance with the contractual rates established with each customer.

We monitor these estimates at each reporting period based on actual cash collections in order to assess whether a revision to the estimate is required. Both the initial estimate and any subsequent revision to the estimate contain uncertainty and require the use of judgment in the estimation of the transaction price and application of the constraint for variable consideration. If actual results in the future vary from our estimates, we will adjust these estimates, which could affect revenue and earnings in the period such variances become known. A 1% decrease or increase in our collection rate from third-party insurance payors, which we believe could be a reasonably likely change, would result in an unfavorable or favorable adjustment to diagnostic test revenue of approximately $16.2 million.

Other revenue

We also recognize revenue from service agreements and collaboration agreements with Biopharma companies and other third parties pursuant to which we provide diagnostic testing and related data aggregation reporting services. Certain of these contracts provide non-refundable upfront payments, which we record as contract liabilities, and variable payments based upon the achievement of certain milestones during the contract term. Milestone payments are a form of variable consideration that are included in the transaction price only when it is probable that doing so will not result in a significant reversal of cumulative revenue recognized when the uncertainty associated with the milestone is subsequently resolved.

For certain service or collaboration contracts that require us to transfer control of the service over time, we recognize revenue over time using an input measure based on costs incurred on the basis that this measure best reflects the pattern of transfer of control of the services to the customer. The measure of progress is developed using our best estimate of the performance period and the anticipated costs to be incurred to perform such services, including any subcontracted service costs.

Capitalized Internal-Use Software Costs

We capitalize certain costs related to the development of our software applications for internal use. Capitalization begins during the application development stage, once the preliminary project stage has been completed. If a project constitutes an enhancement to existing software, we assess whether the enhancement creates additional functionality to the software, thus qualifying the work incurred for capitalization. Costs incurred prior to

meeting these criteria together with costs incurred for training and maintenance are expensed as incurred. Once the project is available for general release, capitalization ceases and we estimate the useful life of the asset and begin amortization. We exercise judgment in determining the point at which various projects may be capitalized, in assessing the ongoing value of the capitalized costs and in determining the estimated useful lives over which the costs are amortized. We periodically assess whether triggering events are present which would indicate that the internal-use software is impaired. To the extent that we change our estimates related to internal-use software, the amount of internal-use software development costs we capitalize and amortize could change in future periods.

Earn-out Contingent Liability

We estimate the fair value of the total earn-out shares based on a Monte Carlo simulation valuation model. The fair value of the earn-out contingent liability is sensitive to expected volatility estimated based on selected guideline public companies and the Company's common stock price which is sensitive to changes in the forecasts of earnings and/or the relevant operating metrics. The model used requires the use of assumptions regarding variables that are complex, subjective and generally require judgment to determine.

Stock-Based Compensation

Stock-based compensation for all employee and non-employee stock-based awards, including restricted stock units, is measured at fair value on the date of grant and recognized over the service period. The fair value of restricted stock units are calculated based on the fair value of our Class A common stock on the date of grant, while the fair value of stock options are calculated using a Black-Scholes option-pricing model. The Black-Scholes option-pricing model requires the use of assumptions regarding a number of variables that are complex, subjective and generally require significant judgment to determine. Changes in the assumptions can materially affect the fair value and ultimately how much stock-based compensation expense is recognized. Key assumptions include expected volatility, expected term, risk-free interest rate and dividend yield. The volatility is estimated based on the average volatility for comparable publicly traded companies over a period equal to the expected term of stock option grants. When selecting these comparable companies, we considered the enterprise value, risk profiles, position within the industry, and whether there was sufficient historical share price information to meet the expected life of the stock-based awards. The expected term of the Company's options has been determined utilizing the "simplified" method as the awards granted are qualified as "plain-vanilla" options. The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant for bonds with maturities consistent with the expected holding periods corresponding with the expected term of the option. We estimate zero dividend yield as we have not historically paid dividends on common stock and do not anticipate paying dividends in the foreseeable future.

Income Taxes

We account for income taxes in accordance with ASC Topic 740, "Income Taxes," under which deferred income taxes are provided for temporary differences between the financial reporting and tax basis of our assets and liabilities. We reduce deferred tax assets, if necessary, by a valuation allowance if it is more likely than not that we will not realize some or all of our deferred tax assets. In making such a determination, we consider all available positive and negative evidence, including future reversals of existing taxable temporary differences, projected future taxable income, tax-planning strategies, and results of recent operations.

We recognize the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by taxing authorities, based on the technical merits of the position.

JOBS Act Accounting Election

We are an "emerging growth company" within the meaning of the JOBS Act. The JOBS Act allows an emerging growth company to delay the adoption of new or revised accounting standards that have different effective dates for public and private companies until those standards apply to private companies. We have elected to use this extended transition period and, as a result, our financial statements may not be comparable to companies that comply with public company effective dates. We also intend to rely on other exemptions provided by the JOBS Act, including not being required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act.

We will remain an emerging growth company until the earliest of (1) September 1, 2025, (2) the last day of the fiscal year in which we have total annual gross revenue of at least $1.07 billion, (3) the last day of the fiscal year in which we are deemed to be a "large accelerated filer" as defined in Rule 12b-2 under the Exchange Act, which would occur if the market value of our Class A common stock held by non-affiliates exceeded $700.0 million as of the last business day of the second fiscal quarter of such year or (4) the date on which we have issued more than $1.0 billion in non-convertible debt securities during the prior three-year period.

Recent Accounting Pronouncements

Information on recent accounting pronouncements can be found in Sema4's audited consolidated financial statements in Note 2, "*Summary of Significant Accounting Policies*" included elsewhere in this prospectus.

Internal Controls

Material Weaknesses

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of a company's annual or interim financial statements will not be prevented or detected on a timely basis.

In connection with the preparation of Legacy Sema4's audited financial statements for the years ended December 31, 2020, 2019 and 2018, we identified material weaknesses in our internal controls over financial reporting, as of December 31, 2020. These material weaknesses had not been fully remediated as of December 31, 2021. In addition, during 2021, management identified a misclassification of certain costs included within cost of services for the years ended December 31, 2021, 2020 and 2019. The material weaknesses identified related to the fact that we did not design and maintain accounting policies, procedures and controls to ensure complete, accurate and timely financial reporting in accordance with U.S. GAAP. Specifically, the material weaknesses identified included the following:

- We did not design and maintain accounting policies, processes and controls to analyze, account for and report our revenue arrangements in accordance with ASC 606, Revenue from Contracts with Customers, and ASC 605, Revenue Recognition.
- We did not design and maintain formal accounting policies, procedures and controls to achieve complete, accurate and timely financial accounting, reporting and disclosures, including controls over the preparation and review of account reconciliations, journal entries and classification of certain costs; the accounting for cost capitalization policies in accordance with ASC 330, Inventory, and ASC 350-40, Intangibles – Goodwill and Other – Internal-Use Software; and the application of ASC 840, Leases, ASC 340-40, Contracts with Customers and SEC Regulation S-X Article 5.
- We had not developed and effectively communicated to our employees our accounting policies and procedures, which resulted in inconsistent practices. Since these entity level programs have a pervasive effect across the organization, management has determined that these circumstances constitute a material weakness.
- Our accounting and operating systems lacked controls over access, and program change management that are needed to ensure access to financial data is adequately restricted to appropriate personnel.
- We do not have sufficient, qualified finance and accounting staff with the appropriate U.S. GAAP technical accounting expertise to identify, evaluate and account for accounting and financial reporting, and effectively design and implement systems and processes that allow for the timely production of accurate financial information in accordance with internal financial reporting timelines, commensurate with our size and the nature and complexity of our operations. As a result, we did not design and maintain formal accounting policies, processes and controls related to complex transactions necessary for an effective financial reporting process.

Remediation Plan

Our management is actively engaged and committed to taking the steps necessary to remediate the control deficiencies that constituted the material weaknesses. During 2021, we made the following enhancements to our control environment:

- In May 2021, we hired a permanent Chief Accounting Officer with substantial technical accounting and internal controls experience, whose responsibilities include working with our Chief Financial Officer, existing employees and third-party consultants to improve the design, implementation, execution and supervision of our controls.
- We added accounting and information technology employees with appropriate experience, certification, education and training to the organization to strengthen our internal accounting team, to provide oversight, structure and reporting lines, and to provide additional review over our disclosures. This includes hiring a Corporate Controller, whose primary responsibilities include working with third-party consultants to improve the design, implementation, execution, and supervision of our controls. We expect to continue evaluating our needs for additional personnel. We expect to provide enhanced training to existing and new employees in order to enhance the level of communication and understanding of controls with personnel that provide key information and perform key roles within our financial accounting and reporting group.
- We engaged outside consultants to assist in the design, implementation, and documentation of internal controls that address the relevant risks, are properly designed, and provide for appropriate evidence of performance of the internal controls; and
- We engaged outside consultants to assist us in the evaluation of our Enterprise Resource Planning ("*ERP*") system in order to mitigate the internal control gaps and limitations with the current configuration, and to enhance the information technology general controls environment.
- Our remediation activities are continuing during 2022. In addition to the above actions, we expect to engage in additional activities, including, but not limited to:
- Hiring more technical accounting resources to enhance our control environment;
- Engaging external consultants to provide support and to assist us in our evaluation of more complex applications of GAAP, and to assist us with documenting and assessing our accounting policies and procedures until we have sufficient technical accounting resources;
- Implementing business process-level controls across all significant accounts and information technology general controls across all relevant systems. This includes providing training for control owners that will present expectations as it relates to the control design, execution and monitoring of such controls, including enhancements to the documentation to evidence the execution of the controls; and
- Implementing improvements to our ERP system to enhance the accuracy of our financial records, enable the enforcement of systematic segregation of duties, and to improve our information technology general controls environment.

We continue to enhance corporate oversight over process-level controls and structures to ensure that there is appropriate assignment of authority, responsibility, and accountability to enable remediation of our material weaknesses. We believe that our remediation plan will be sufficient to remediate the identified material weaknesses and strengthen our controls. As we continue to evaluate, and work to improve our controls, management may determine that additional measures to address control deficiencies or modifications to the remediation plan are necessary.

While we have performed certain remediation activities to strengthen our controls to address the identified material weaknesses, control weaknesses are not considered remediated until new internal controls have been operational for a period of time, are tested, and management concludes that these controls are operating effectively. We will continue to monitor the effectiveness of our remediation measures in connection with our future

assessments of the effectiveness of internal control over financial reporting and disclosure controls and procedures, and we will make any changes to the design of our plan and take such other actions that we deem appropriate given the circumstances.

BUSINESS

Overview

Who We Are

We are a patient-centered, health intelligence company with a mission to use artificial intelligence ("AI") and machine learning to enable personalized medicine for all. Our integrated information platform leverages longitudinal patient data, AI-driven predictive modeling, and genomics in combination with other molecular and high-dimensional data in our efforts both to deliver better outcomes for patients and to transform the practice of medicine, including how disease is diagnosed, treated, and prevented.

We have established one of the largest, most comprehensive, and fastest growing integrated health information platforms, collecting and leveraging genomic and clinical data in partnership with patients, healthcare providers and an extensive ecosystem of life science industry contributors. We are now generating and processing over 47 petabytes of data per month, growing by more than 1 petabyte per month, and maintaining a database that includes approximately 12 million de-identified clinical records, including more than 500,000 with genomic profiles, integrated in a way that enables physicians to proactively diagnose and manage disease. This expanding database is a virtuous cycle of data: new data enables us to further develop, train, and refine predictive models and drive differentiated insights, which models and insights we deploy through our next generation diagnostic and research solutions and portals to support clinicians and researchers and engage patients, all of which interactions generate more data to continue the cycle.

Today, by providing differentiated insights through diagnostic testing solutions to physicians and patients across the United States ("U.S.") in areas such as reproductive health ("Women's Health"), population health, and oncology ("Oncology"), we are reimbursed by payors, providers, and patients for providing these services. In collaboration with pharmaceutical and biotech ("Biopharma") companies, we receive payments for a broad range of services relating to the aggregated data on our information platform, such as consenting and recontacting patients, the development and implementation of a wide range of predictive models, including drug discovery programs, conducting real-world evidence studies, and aiding in the identification and recruitment of patients into clinical trials. Over the next several years, we expect to focus on expanding the revenue from our health system and Biopharma partners, while also working to continue to grow the volumes and revenues from our diagnostics test solutions.

While there are many companies seeking to harness the potential of "big data" to address the challenges within the healthcare ecosystem, we believe that few have the scale of our company combined with our revenue-generating diagnostics testing business and origins as a company conceived and nurtured within a world-class health system. These characteristics have enabled us to build a significant and highly differentiated technological and informational asset positioned to drive precision medicine solutions into the standard of care in an unparalleled way.

Our World Class Team and Unique Origins

Sema4 was founded by Eric Schadt, Ph.D. as part of Icahn School of Medicine at Mount Sinai's Department of Genetics and Genomic Sciences and the Icahn Institute for Genomics and Multiscale Biology. Dr. Schadt is a world-renowned expert on constructing predictive models of disease that link molecular data to physiology to enable clinical medicine. He has published more than 450 peer-reviewed papers in leading scientific journals, with a public citation or h-index of 137, and contributed to discoveries relating to the genetic basis of common human diseases such as cancer, diabetes, obesity, and Alzheimer's disease. As of December 31, 2021, we have approximately 1200 employees, including over 160 Ph.D.-level data scientists whose collective work has been recognized in areas such as data science, network modeling, multiscale biotechnology and genomics.

Sema4 was established out of the Mount Sinai Health System (which we refer to together with its related entities as "Mount Sinai") and commenced operations in June 2017 as a commercial entity that could effectively engage diverse patient populations and health care institutions at scale, founded on the idea that more information, deeper AI-driven learning, and increased engagement of patients and their providers will improve diagnosis, treatment, and prevention of disease. We have since established and deployed our comprehensive and integrated

genomics and information platforms, and intend to continue to expand our scale and reach through organic and inorganic growth.

Our Purpose-Built, Flexible Platforms Address Immediate and Untapped Market Opportunities

With the rapid decline in next generation sequencing costs and the increased accessibility of large scale, commoditized computer hardware and storage information products through the cloud, we expect that our core information platform, Centrellis®, supported and fueled by our genomic analysis platform, Traversa™, will be well-positioned to drive improved clinical outcomes competitively in the healthcare market.

Our information platform was built to be highly adaptable to different data types and different diseases and health conditions, with the aim to deliver precision medicine and improved health outcomes across a patient's entire life cycle. Accordingly, we expect our platforms to capitalize on a wide range of growth opportunities, and we intend to apply capital over time to make targeted acquisitions to accelerate our ability to reach a wider range of patients, integrate more deeply into clinical workflows, and address the significant, unaddressed white space for health intelligence in the healthcare ecosystem. These include a broad range of therapeutic segments, beyond our existing focus of our diagnostics solutions for Women's Health, and Oncology, where we believe there is an immediate need for precision medicine solutions such as in autoimmune disorders, where medical care represented over $100 billion of spend in the U.S. in 2011, rare diseases, which is estimated to cost the U.S. healthcare system over $400 billion annually, and cardiovascular disease, where direct medical spend represents approximately $200 billion annually.

By combining our data-driven approach and our deep understanding of health system workflows, we have developed a holistic health information platform, Centrellis, to transform the disease diagnosis and treatment paradigm for the entire healthcare ecosystem: patients, physicians, health systems, payers, and Biopharma companies. The Centrellis platform is comprised of a data management backend that supports a wide array of databases, data warehouses, and knowledge bases, a data analytics layer to mine the data and construct predictive models that provide differentiated insights, and a series of application programmable interfaces to enable tool and software applications to access the data and models. Centrellis serves as the underlying foundation of our precision medicine solution and comprises a sophisticated data management and analytics engine. In the data management layer, our platform processes and stores data in a highly structured and accessible way, which is then analyzed by an advanced insights engine in the analytics layer that deploys state-of-the-art AI, probabilistic causal reasoning and machine learning approaches, and complementary analytics capabilities to deliver increasingly accurate insights to patients, providers, and researchers across a broad range of applications. Centrellis is designed to transform treatment decisions across multiple therapeutic areas by engaging large-scale, high-dimensional data and querying the predictive models of disease and wellness using patient-specific data to derive highly personalized, clinically actionable insights. Centrellis supports various applications, such as delivery of personalized and actionable treatment insights into clinical reports, clinical trial matching, real-world evidence trials and clinical decision support, through an advanced programmable interface ("API") layer.

We have also developed a comprehensive genomic platform, Traversa™, to serve as the backbone of our screening and diagnostic products and with the capacity to deliver molecular data that can be re-accessed, analyzed and delivered throughout a patient's lifetime. Traversa is designed to simultaneously assay at clinical-grade coverage all known medically relevant regions of the genome, as well as survey the entirety of the human genome, to surface signals that might be medically relevant to a patient in the future. Traversa is integrated with the Centrellis information platform and is designed to adapt at the rate of learning and to match the significant pace of information and knowledge growth, especially in the genomics arena, to allow us to provide actionable, accurate, and cutting-edge insights from complex and comprehensive data assets. We also expect this platform to enable us to scale our operations and to improve our margins in generating secondary insights for patients and providers.

We Are Building Richer Longitudinal Data Through Deeper Patient and Provider Engagement

We engage with patients, physicians, and health systems as partners and based on principles of transparency, choice, and consent. Driven by our direct engagement with patients and strategic relationships with multiple health systems, the database we have built contains extensive electronic medical record ("EMR") data, totaling

approximately 12 million de-identified clinical records, many with genomic profiles, and has been designed to enable Centrellis to draw from our extensive data assets in a way that enables physicians to proactively diagnose and manage disease. We expect our current and targeted strategic relationships will provide us with access to additional active patient cohorts and datasets to fuel this growth and perpetuate our iterative, data-driven business model, including by rapidly scaling our diagnostic test solutions franchise with physicians and patients through direct engagement with multiple health system partners.

In addition to providing a majority of our current revenue and generating hundreds of thousands of genomic profiles, our established diagnostic test solutions also allow us to engage patients directly as partners, both as part of their clinical care and also acting on their behalf, with appropriate informed consent, to acquire, organize and manage any health data generated on them through the course of their care, all of which contributes to the further development of our genomics and information platforms. Further, we have demonstrated patients' willingness to partner with us. For example, over 80% of diagnostics solutions patients and users who engaged with our patient portal have given us their informed consent to retrieve, organize, and manage their health records and data, and to facilitate their access to and sharing of that data, as well as additional data that patients share and create through their use of our expanding suite of digital experience products.

Our Established Diagnostic Solutions Are Scaling Rapidly

We currently operate a mature diagnostic business that generates revenue and engages with patients through our varied and sophisticated diagnostics and screening offerings. Our population health offerings are designed to run through our Traversa platform and give us the ability to inform on thousands of diseases and conditions, from rare disorders, to drug safety, to risk profiles across a broad range of common human diseases of significant public health concern. We have developed an array of diagnostic and screening solutions to inform across a patient's life course, ranging from reproductive health and newborn screening to drug safety and oncology. Our Women's Health solutions sequence and analyze an industry-leading number of genes, and use Centrellis' interpretive information tools to translate raw sequencing and clinical data efficiently and accurately into digestible clinical reports that guide decision making by patients and physicians. Our Oncology diagnostic solutions feature both somatic tumor profiling and hereditary cancer screenings, along with a foundational whole exome and whole transcriptome sequencing approach.

Centrellis enables the complex interpretations of these data to identify key driver genes, activated and suppressed pathways, molecular subtypes, therapeutic interventions and matching to clinical trials. We believe our array of diverse diagnostic solutions, built on our differentiated grounding in scientific excellence and coupled with an end-to-end full-service model, have led to our rapidly growing customer bases in Women's Health and Oncology and increasing traction with health systems, as well as deep, trusting engagement with patients.

We Are Embedding Our Solutions Through Innovative, Deep Relationships

Our origins in and subsequent work with Mount Sinai have provided us with an extensive understanding of health systems, patient, and physician workflows as well as the complex interconnectivities that define patient-physician relationships. We have used this knowledge to develop our integrated health system collaboration model, where we have the capabilities necessary to integrate across health system workflows as a holistic health intelligence partner in order to deploy our comprehensive genomics and information platforms, our data curation and harmonization capabilities, and our patient and provider engagement software applications. Our solutions support our health system partners across their operations, helping them integrate a new standard of care and creating a deep relationship with us that helps both partners realize the potential of the relationship. In addition to creating diagnostic revenue and a clinical relationship with our health system partners and their patients, this engagement provides us with access to insights informed by analyzed and processed EMRs from the health system, as well as the expansive molecular information we generate from our genomics platform as the health system's precision medicine partner. Learning from our long-standing relationship with Mount Sinai, we have refined a health system engagement model that is both operational and economic and designed to maximize both our and our health system partner's value from the relationship.

We are currently activating and expanding our relationships with several leading health systems that will expand our access to data and that we expect will position our platforms for rapid growth and broad commercial opportunities, and have recently signed contracts with three new health systems in support of this strategy. These systems include: AdventHealth, Avera Health, and Northshore University HealthSystem.

Our AdventHealth partnership builds upon the current AdventHealth Genomics and Personalized Health Program to offer genomic solutions to patients across a number of services and specialties. Together, we will conduct data structuring and curation of the combined genomic and clinical data to enable clinicians and scientists to advance research and discovery to improve patient care. We are initially focused on accelerating research in the central Florida division, which includes 18 hospitals and emergency departments, and accounts for more than two million patient visits annually. Nationally, AdventHealth has 51 hospitals and over 100 care sites across 9 states.

Our Avera Health partnership initially focuses on advancing oncology care, enabling Avera Health's providers and patients to benefit from data-driven insights that inform targeted cancer treatments. Avera Health's providers will be able to leverage Centrellis, to curate, structure and integrate clinical and genomic data to support both cancer research and clinical care at Avera Health. We will deliver predictive disease network models and clinically actionable insights, empowering Avera Health's providers to further improve the prevention, detection, and treatment of cancer for their patients. We are also offering digital tools, which give Avera Health's providers the ability to readily search for cohorts of patients based on clinical criteria, view a patient's treatment history that is contained in the curated data as an interactive timeline, and more systematically match patients to clinical trials.

At NorthShore University HealthSystem, we are enabling a data-driven genomics program to help clinicians and patients detect, and treat diseases at an early stage, when they are most treatable. As part of the program, NorthShore University HealthSystem's clinicians and patients will have access to our information-rich genomic solutions for hereditary cancer, population health, pharmacogenomics, and rare expanded carrier screening. Importantly, by combining clinical information with genomic analysis, physicians will be better positioned to administer more personalized, holistic care plans by both drawing insights on how genetic variants will impact patients' chances of developing disease and determining the most appropriate treatment options. In addition to guiding clinicians, the program is expected to make it easier for NorthShore University HealthSystem patients to understand the implications of genomic findings.

Centered on Centrellis and Traversa, we have also established and continue to seek strategic relationships with Biopharma companies to enable innovation across the entire drug lifecycle, from next generation drug discovery and development, to post-market efficacy surveillance, to informing on bioavailability, toxicity, tolerability, and other features critical to drug development. We have demonstrated the ability to integrate across all aspects of the next generation therapeutic and drug development process, including: biomarker identification as part of early stage drug discovery; identification, validation and prioritization of drug targets; clinical trial patient recruitment; real-world evidence studies; and identifying new markets and indications for existing assets. We believe our solutions allow our Biopharma partners to harness the potential of big data to enable the development of next generation precision medicine therapeutics.

Centrellis: Our Health Information Platform Solution

By combining our data-driven approach and our deep understanding of health system workflows, we have developed a holistic health information platform, Centrellis, to transform the disease diagnosis and treatment paradigm for the entire healthcare ecosystem: patients, physicians, health systems, payers, and Biopharma companies. Centrellis is the culmination of our critical competencies and goals as a company:

- technologies aimed at patient and provider engagement,
- the generation, aggregation and standardization of multi-dimensional data, and
- the modeling and generation of differentiated, domain-specific insights

Driven by the virtuous cycle and interconnection of our clinical diagnostics products, rich data assets, database engineering and data science applications, we continue to evolve and deploy our platform to facilitate a better

understanding of disease and wellness and improve the standard of care through information driven knowledge and understanding.

Provider Engagement Technologies: Our Next Generation Tools

We have built comprehensive solutions in Centrellis that enable clinicians, researchers, and patients to engage with the relevant structured health data and to leverage our predictive models of disease and wellness and produce clinically actionable insights.

For clinicians and researchers, we have designed Centrellis's adaptive learning capabilities and tools to enable health systems and clinicians to manage their patient care, research, and health data in one place and to adapt to rapidly changing scientific and clinical norms through an API layer, including:

- Integration and on-boarding for health systems and practices that connects data from EMRs and disparate and varied databases,
- Searching and analyzing cohorts of patients, allowing an assessment of their patient populations and quality of care in real-time,
- Enabling clinical decision support and personalized and actionable treatment insights into clinical reports,
- Identifying patients who are candidates for certain clinical genomic analyses,
- Managing the clinical analysis ordered for their patients, from ordering, tracking, resulting, and reanalyzing based on new findings,
- Supporting clinical care and research by matching patients to available clinical trials based on highly personalized inclusion and exclusion metrics, and
- Informing on administrative decisions including as they relate to patient growth, total cost of care, and risk identification and mitigation.

Patient Engagement Technologies: Building Trust and Providing Value Through Clinical Partnership

We are dedicated to giving patients control of their own health data, and in support of this goal, we have designed patient access to Centrellis through our patient portal. Patients have demonstrated their trust by engaging with us and providing consent for us to collect and store their EMR data. After creating an account, patients are able to manage and track the clinical analysis that we are performing for them, including by being able to track, receive, and understand the initial insights into their clinical tests and data (including expanded carrier screening ("ECS") tests, and hereditary cancer tests), and to access our supporting clinical services, such as genetic counseling. Our patient portal also provides patients with the opportunity to partner with us to collect, manage, and regularly update their health data from their disparate healthcare providers, and help participants engage with their data through user-friendly applications, such as their genomic ancestry, personalized residual risk calculations, and other clinical and educational insights and information through important health events, like their pregnancy journey. For patients who have indicated their willingness to participate in research studies, our platform also provides integrated digital informed consenting and research program participation, through transparent, institutional review board approved processes, including targeted clinical trials offerings that provide relevant alternatives and access to the latest scientific trials.

Activating Data Through Generation, Curation and Engineering

We designed Centrellis to create an accessible and usable database that can support interpretation consistently across patient populations represented within the broad healthcare ecosystem. Centrellis aggregates large-scale and diverse data, abstract and structure informative unstructured data, and finally integrate the data into an accessible, web-scalable data warehouse that employs a common data model across a broad series of databases. Unstructured data derived from EMR and associated data are run through multiple pipelines leveraging machine learning-enabled natural language processing, augmented as needed by human annotators, to extract information and knowledge from

that data and then structure and implement extensive quality assurance processes for the resulting annotations. Our multiscale, integrative strategy allows us to connect the processed EMR data with complex biological data from many sources, such as the genome, proteome, transcriptome, epigenome, and microbiome. Our standardization of the genomic and EMR data also allows us to pursue strategic relationships in the Biopharma industry, connecting Biopharma companies with clinicians and researchers to create computational models of disease, discover and validate targets and biomarkers, help design clinical trials and recruit patients, and support the collection of real-world data and evidence.

We not only collect data from external sources, but also generate clinical-grade genomic datasets in our clinical and research processes, which further fuels the richness of the data from which Centrellis draws. Our genomic infrastructure enables us to convert bio-samples into datasets that span a range of genomic modalities, from DNA and RNA sequencing to epigenomic profiling, as well as different next generation sequencing technologies, including long-read, single molecule sequencing, low pass whole genome sequencing, and additional transformative technologies. Together with our diagnostic solutions, we use this multi-technology approach to ensure we generate data to comprehensively cover clinically actionable insights from and common variation in the genome, enabling the diagnosis of rare conditions and diseases or risk of passing on mutations to offspring that may cause severe disease, predicting risks of developing diseases such as cancer, predicting tolerability of various therapeutics, and creating broad genomic health profiles through the use of polygenic risk scores.

Our Advanced Domain-Specific AI Informatics for Insight Generation

Finally, we believe our informatics and analysis capabilities form a meaningful connection between the web of databases that we have created in our data warehouse and the utility of Centrellis to our users. Based on our informatics engine, Centrellis generates deep interpretive insights derived from large-scale, multi-omic data, taking advantage of our deeper data generation capabilities, and provides actionable treatment recommendations and innovative research findings. These insights are provided to patients, clinicians, researchers, and partners through the tools described above.

We are also continuing to develop these models and insights. Our researchers have developed a methodology to integrate diverse multi-omics data, including genomic, transcriptomic, and proteomic data, into causal probabilistic networks that help us to understand disease processes and identify key biomarkers through advanced network analysis. Our scientists have pioneered the use of DNA variation information to statistically infer causal relationships among any number of traits that have common genetic variance components. These approaches allow our teams to infer directed causal relationships among a pair of traits with shared genetic variance components, which then can be more systematically applied to traits to infer probabilistic causal network structures that can be mined for a broad range of discoveries. We also designed Centrellis with a high degree of flexibility to allow the platform to adjust to the rapidly changing and advancing health information landscape, highlighted by our Traversa genomic analysis platform, which we believe will lead to improved cost profiles over time as assays transition to whole genome sequencing at increasing resolutions.

As we collect and analyze additional datasets, our platform enables the virtuous cycle of data, and we are able to further refine our products and hone our capabilities to provide enhanced analysis of these data. More data and more insights generate further data and insights to support our models. We have constructed automated pipelines to continuously search the literature and research repositories to expand and distill our knowledge graphs, which are in turn queried to provide the interpretations and insights delivered to users of our systems. To support our interpretations and insights, we utilize internal experts as needed to help resolve conflicting findings to improve upon the actionable insights we deliver to physicians and patients.

Traversa: Our Genomics Platform for Optimizing Screening and Diagnostic Genomics Products and Population Health Initiatives

Traversa is our comprehensive genomics platform that has been designed to serve as the backbone of our genomic analysis products, and we are in the process of transitioning all of our genomic analyses to this platform. For products on the Traversa platform, we generate data on all known medically relevant regions of the genome at clinical-grade coverage, as well as low-pass whole genome data to span all common variation in the genome. We

also ask for the patient's consent to biobank the corresponding samples for future clinical testing. While we report on the specific genes analyzed at the request of the clinician and patient, these baseline data and bio-banked samples allow us to respond to requests for additional analysis quickly by generating "in silico" interpretations on genomic data already existing on a patient and to surface signals that might be medically relevant across a patient's life course.

When deployed at across an entire health system, as we intend with our health system partners, Traversa will enable data driven collaborations and initiatives with health systems by establishing comprehensive clinical and genomic data profiles with patient consent. Particularly where integrated with EMR data, Traversa provides health systems with a unique opportunity to deploy population health management programs because of the robust data from which those programs will draw and because of the efficiencies it will create across the health ecosystem by eliminating the repetition of the most time-consuming and costly aspects of genomic analysis, including sample collection and preparation and the generation of sequence data. Using Traversa, clinicians and health systems will have the freedom to advance patient care by allowing clinicians to establish clinical utility and drive adoption of new analysis products, which we believe will consequently expedite improved reimbursements against lower total production costs for those offerings.

We Collect and Manage Rich, Longitudinal Data Built from Diverse Sources

The health information database that we have created draws from many complementary sources, which we manage in accordance with patient consent and preferences, our regulatory obligations, and our transparent privacy policy and practices. These data are housed in a complex, cloud-based data lake that allows us to manage the various rights and obligations for each dataset at a granular level, including patient-specific requests with regard to their data.

This database includes data generated in the performance of our clinical services to patients and clinicians, including Women's Health and Oncology testing, as well as additional data that patients provide to us through their engagement with our patient portal and research programs. In addition, we participate in health information exchanges and public database programs, including through the National Institutes of Health. We also generate and collect data by collaborating with our research partners and provide sequencing and analysis services in connection with research programs. We further leverage the data rights provided by patients and secured through our strategic relationships, such as our oncology information partnership with VieCure that by the end of 2022 is expected to provide us with access to multiple cancer centers and data from all of their active cancer patients, with the number of newly diagnosed active cancer patients growing substantially each year. Additionally, we support health systems and other clinical service providers by applying our Centrellis tools to their clinical workflows and medical record databases, and we receive certain rights to work with anonymized datasets and to partner with the health systems in their ongoing clinical and research programs. We have provided such services extensively for Mount Sinai and are in the process of expanding this program with additional health systems, including Advent Health, Avera and NorthShore. For more information regarding our data arrangements with Mount Sinai, see "*Certain Relationships and Related Party Transactions—Related Party Transactions—Sema4 Related Party Transactions*".

Our Established Diagnostics Solutions

Our existing diagnostics solutions business centers around Women's Health and Oncology and our industry-leading diagnostic solutions are powered by Centrellis and delivered through a full-service model that efficiently integrates into provider workflows. Currently, we derive the majority of our revenue from these established diagnostic test solutions.

Our Elements Women's Health Solutions

Our deep foundation in Women's Health began before Sema4's formation within Mount Sinai, where our lab—then called the "Mount Sinai Genetics Testing Lab"—pursued the goal of providing compassionate patient care to a highly diverse population while advancing science through education, research, and outreach. We pioneered accurate and precise pre-conception genetic screening, and we have continued to build upon that work, expanding our focus into a multi-generational and pan-ethnic view of the health of individual women and their families. Sema4 Elements™, our portfolio of data-science driven products and services to support reproductive and generational

health, highlights our continued focused effort to accelerate the expansion of genomic diagnostic solutions, secondary insights, platform solutions and enriching health system value to drive continued growth in our Women's Health business, including by leveraging our state-of-the-art genomic infrastructure and Centrellis platform.

Carrier Screening: Deriving population-health insights from genomic data to differentiate our industry-leading tests

Our ECS test is one of the most comprehensive and accurate carrier screening tests available in the market, covering up to 502 genes. We provide a comprehensive solution to physician practices to enable them not only to deliver sophisticated differential insights and care management guidance in support of the clinician's care plan for the patient, but to also do so with minimal impact on the practice's operation, helping to ensure physician offices are not overwhelmed by the amount of information and follow up that can be necessitated by carrier screening.

Our ECS solution uses proprietary technology to identify a patient's molecular ancestry on a genome-wide level for personalized residual risk assessments by analyzing patient-specific genealogical information that is critical to better understand a patient's chance for passing on inherited disease. This technology has been designed to increase the accuracy of the residual risks reported to patients, in comparison to competing products that determine residual risk based on using self-reported ancestry information that does not reflect the population groups represented in the patient's genome. Our solution also provides patients with personalized residual risk education, along with the option to view their molecular ancestry report in the Sema4 patient portal.

Our Non-invasive Prenatal Testing Solutions

Our Noninvasive Prenatal Testing is a comprehensive noninvasive prenatal test, that screens for autosomal and sex chromosome aneuploidies. Our advanced sequencing technology has been designed to provide reliable results down to approximately 2% fetal fraction, the amount of fetal cell-free DNA in the maternal blood sample, and has been designed to have a low failure rate, which helps reduce the need for redraws, limits unnecessary invasive procedures, and improves time to results.

Expansive development in prenatal screening allows our team to advance scientific efforts to deliver Genome Wide Screening and includes the ability to detect additional whole chromosome aneuploidies and copy number variations ("CNVs"). We believe an updated bioinformatics pipeline will help to further reduce false positives. We expect to release new versions of our code in 2022, which we believe will help improve the positive predictive value for CNV calling through fetal fraction enrichment and CNV normalization through nucleosome positioning and fragment characteristics.

We are developing these future test versions to enable the detection of single gene disorders, such as cystic fibrosis and sickle cell disease. This testing may be used for at risk couples to screen a pregnancy for genomic analysis of a specific disorder or as a general screening tool with a panel of diseases. We believe these code enhancements will also facilitate validation of polyploidy, fetal zygosity and molar pregnancy detection, all of which are important aspects of screening pregnancies for chromosomal abnormalities and are not widely available through non-invasive testing.

Our Natalis Newborn Screening Solutions

Our Natalis test is an extension of our screening portfolio allowing for detection of heritable conditions from pre-conception, pregnancy and childhood. Newborn Screening ("NBS") detects heritable conditions that are amenable to medical management in newborns and young children. Natalis screens for 193 conditions where knowledge of the condition by the pediatrician may result in prescribing treatment with medications, dietary modifications, or other therapies to improve the baby's health. All positives are confirmed using biochemical and molecular analysis. Natalis screens for up to five times as many conditions as the newborn screening programs run by certain state governments.

Our Signal Precision Oncology Solutions

We believe that our Centrellis platform, combined with our comprehensive whole exome and whole transcriptome tumor profiling and hereditary cancer and pharmacogenomics genomic testing solutions, will make a

meaningful difference in transforming cancer care. We have developed the “Sema4 Signal®” portfolio to be leveraged individually or as part of a holistic solution for precision oncology care. The Sema4 Signal portfolio features the integration of our germline and somatic tests with our informatics and data science tools, enabled by customized services to meet patient and provider needs to help drive more personalized care. The Sema4 Signal products include our oncology genomic test solutions, our molecular and clinical data curation and annotation capabilities to inform on the genomic information in the context of the patient’s previous and current medical records, and various software applications to enable engagement of these data and complex results to facilitate clinical decisions, research discoveries and drug development.

The Sema4 Signal Hereditary Cancer Solution

Our Sema4 Signal Hereditary Cancer solution determines if a patient carries an inherited genetic change that increases the risk of cancer or informs on cancer treatment. It is used to inform personalized medical management decisions to aid early detection and prevention of cancer, as well as to determine the most appropriate treatment approaches if cancer occurs, and strategies to reduce risk of additional cancers.

We offer one of the most comprehensive sets of panels on the U.S. market, and deliver this solution supported by the Traversa platform to enable us to adapt our panels as new discoveries on clinically actionable variants are made, so we can adapt at the rate of learning. Our solution includes tools to enable testing at the point of care or outside the office, including a digital family screening questionnaire to identify individuals who would benefit from testing, digital ordering via an EMR portal, video-based education, saliva procurement in the patient’s home, proactive billing investigation, pre-and post-test genetic counselling and family outreach to enable cascade testing.

Our Hereditary Cancer Solution is a unique product in our portfolio in that it is sold in connection with our Oncology, Women's Health and population health solutions. For affected cancer patients, integrating hereditary cancer with our Sema4 Signal Whole Exome and Transcriptome and our informatics offerings, which incorporating real world evidence, integrates available data needed to better personalized clinical care decisions. For unaffected patients, our Sema4 Signal Hereditary Cancer solution is incorporated into both our Women’s Health and Population Health products and services to support early identification and treatment of cancer risk.

Our Signal Whole Exome and Transcriptome Solution

We believe our Sema4 Signal Whole Exome and Transcriptome solution is one of the most comprehensive molecular profiling solutions from a commercial entity to receive New York State approval. Our profiling platform integrates tumor-normal matched whole exome sequencing (“WES”) with whole transcriptome sequencing (“WTS”) to deliver clinically actionable information about somatic and germline alterations in solid tumors and hematologic malignancies. This solution provides for access to a holistic view of a patient’s genome and insights into novel fusions, splice variants, and molecular pathways. It also provides for germline findings for cancer and non-cancer genes, as per American College of Medical Genetics guidelines, with relevance to comorbidities, such as familial hypercholesterolemia, and certain drug interactions.

We deliver the WES/WTS solution using a number of proprietary tools housed in Centrellis, including our cancer knowledge-base, which contains comprehensive structured data and learnings on clinically relevant variants, including curated maps that link relevant clinical trials to variants that serve as eligibility biomarkers for the trials, as annotated by Ph.D. oncology experts. Our variant interpretation station for oncology automates clinical reporting by managing the variant curation process and recommending suitable therapies. This AI-driven genomic platform is updated regularly with recent medical literature and prioritizes clinically-significant variants, enabling providers to quickly review and leverage actionable insights.

Sema4 Signal Informatics Solutions

To complement the genomics diagnostic solutions, the Sema4 Signal products leverage Centrellis’s provider engagement technologies, described above, including to automatically abstract, annotate, and combine oncology specific datasets, including clinical medical record data, imaging, and genomics. This clinical-genomic data set is provided back to health systems and providers and is powered by our digital applications to drive better personalized

care for patients, including clinical trial recruitment, improved system-wide quality of care and increased financial and research activity.

Regulatory and Payer Relations Strategy

We have developed and are advancing our strategy to drive increased reimbursement and higher average selling prices ("ASPs") for our Sema4 Signal Oncology solutions. As part of this strategy, we will take advantage of a Medicare Administrative Contractor ("MAC"), National Government Services ("NGS"), update to a Local Coverage Decision ("LCD") titled Genomic Sequence Analysis Panels in the Treatment of Solid Organ Neoplasms under which qualifying CGP tests are covered for patients insured by Medicare, who are living with advanced cancer and meet other clinical criteria.

In addition, we are expanding our presence in select markets where Palmetto GBA is the MAC and the MolDx program they administer provides opportunities to apply for coverage under existing or future LCDs. Specifically, we have, or intend to, submit Technical Assessments for coverage and reimbursement of WES/WTS and other tumor profiling solutions based on existing MolDx LCDs.

Beyond the testing, we are exploring the regulatory and market access landscape as it relates to the governance and reimbursement of real-world evidence and AI driven clinical decision-making tools. As we demonstrate the clinical utility of information driven solutions, these emerging areas will become relevant.

Our COVID-19 Testing Initiative

In response to the outbreak of the worldwide COVID-19 pandemic, in the first quarter of 2020, we rapidly leveraged our existing technologies and infrastructure capabilities, supplemented by a requisite set of technologies and services, to offer a comprehensive COVID-19 diagnostic testing service for our customers. However, on December 15, 2021, we announced that we decided to discontinue COVID-19 testing services by March 31, 2022 and began notifying our COVID-19 testing solutions customers of this decision. Nationwide and regional lab capacity for COVID-19 testing has increased since we entered the market for COVID-19 testing in the first half of 2020. Management believes it is the appropriate time to discontinue this line of services and dedicate all of our efforts and resources to our core mission to transform healthcare by using artificial intelligence to enable the delivery of precision medicine as the standard of care.

GeneDx

On April 29, 2022, we consummated the transactions contemplated by the Merger Agreement, whereby we acquired GeneDx through the Mergers.

GeneDx is a patient-centric health information company and leader in delivering clinical genomic answers to an ever-increasing community of patients, families and healthcare providers. With more than 20 years of experience in diagnosing rare disorders and diseases, GeneDx has pioneered panels, exome and whole genome sequencing and have developed a proprietary genomic interpretation and information services platform in support of healthcare partners and patients globally. GeneDx creates, follows, and is informed by cutting-edge science and technology. With one of the most sophisticated datasets of genomic information, GeneDx is able to identify new disease-causing genes, advancing the field of medicine through the detection, discovery, and diagnosis of genetic diseases.

Founded by scientists from the U.S. National Institutes of Health ("NIH") in 2000, GeneDx has a proven track record of expertise in genetic testing, having launched next generation sequencing panels in 2008, pioneered exome sequencing in 2012 and has now sequenced more than 300,000 exomes to date. GeneDX has performed more than one-million genetic tests and has developed the following:

- a curated database of disease-associated genomic variants;
- proprietary bioinformatics and variant interpretation pipelines; and
- rapid exome and whole genome sequencing testing options •a curated database of disease-associated genomic variants;

GeneDx's years of exome sequencing experience provides an enormous phenotyped clinical genomic dataset, including more than 2.1 million structured phenotypes with 60% as parent-child trios. Of particular importance, GeneDx has invested resources over time to annotate the phenotypes and sequence the parents, because they improve the diagnostic outcome of each case but also because that data improves the interpretation of future cases. GeneDx now has nearly twice as many expertly annotated disease-causing variants as the largest public resource, ClinVar, across more genes, which GeneDx has built over the course of a decade of clinical work

Our Solution for Health Systems and Providers

Our origins within a large academic medical center helped us establish our integrated health system collaboration model, where we seek to integrate our platform across numerous health system workflows to enable precision medicine solutions using Centrellis, from Women's Health, to Oncology, to patient wellness. Our provider and health system engagement offerings include patient and provider portals, facilitating scheduling of patient appointments, patient consenting, pre-test and post-test genetic counseling, results delivery and patient record management, among other tools and applications that are designed to allow physicians to better engage contextualized information around their patients to improve decision making.

Our Health System Engagement Model

We believe we have developed a compelling value proposition for our initial health system partners, with distinguishing features including our focus on serving local community populations, our track-record of delivering digital or technology-enabled standards of care, and our investment in precision medicine and adoption of genomic diagnostic solutions, with our desire to have predictive insights permeate all service lines and the general patient experience in their system. In addition to our deep relationship with Mount Sinai, we have contracted to deploy Centrellis in additional health systems, which we expect will expand our impact and reach.

We have refined a health system engagement model designed to maximize both our and our partner health system's value from the relationship. We balance clinical-grade and research-based projects in order to deliver value in an economically sustainable manner and establish health and economic performance metrics that form the basis of quarterly steering committee reviews with the program's executive sponsors. Our model focuses on:

- Embedding our genomic analyses as a standard of care for Women's Health, Oncology and/or specific diseases, which includes our full-service model including patient and provider education, patient engagement, genetic counseling and integration with the health systems' clinical workflow and EMR,
- Enhancing existing health system data sets by leveraging our data curation capabilities for both structured and unstructured data to identify clinical utility that can be used by health system providers, researchers and administration,
- Developing software applications to facilitate deeper engagement of the enhanced health system data we produce, such as reconstructing and visualizing patient health journeys, identifying patient cohorts based on any number of filter criteria, and characterizing outcomes of patients in response to different treatments prescribed,
- Establishing population health programs where health system patients are invited to broad population genetic screening, and
- Developing mutually beneficial research collaboration programs that leverage the strengths of our and our health system partners.

Our Solutions Create Mutually Beneficially Value for Us and Our Health System Partners

We pursue strategic relationships with health systems that evaluate financial returns on a holistic basis. We evaluate success on a long-term basis and recognize that the primary aim of every health system is to provide superior patient care with improved health economics. As such, we continue to use the proceeds from our July 2021 Business Combination and related private placement financing (which we refer to as the "Prior PIPE Investment") to accelerate growth in our health system relationships by further investing in research-oriented projects, as well as

data curation, platform integrations, and building standards of care to operationalize our testing programs. Starting with Mount Sinai and extending throughout our network, we intend to cross-validate and scale our technologies across health systems, as we seek to enable patients by leveraging data and tools across systems and patient populations in a network model so each partner can benefit from what is being learned across the healthcare ecosystem.

We Act as a Broker and Catalyst for Commercial Engagement Between Health System and Biopharma Companies

While health systems and Biopharma companies have an established ability to collaborate effectively and will continue to partner directly, we believe that our network in both segments of the healthcare ecosystem and ability to add value to these relationships through data engineering makes us well-positioned as a valued collaborator for both types of organizations. Biopharma collaborations are often not the focus for health systems, as they have high start-up costs to develop relationships that extend to patient care. We can support our health system partners by working more collaboratively with them to understand their capabilities and how those capabilities are complemented by our enhancement of a health systems' data assets and clinical-genomic data generation capabilities, and by facilitating solutions that can be provided jointly to Biopharma companies.

Our Biopharma Solutions Engage and Enable Our Partners

We have established and continue to seek strategic relationships with Biopharma companies to enable drug discovery, development, and commercialization. We have demonstrated the ability to integrate across the pharmaceutical life cycle as a result of the unique data and patient and provider engagements developed in our health system relationships and information-driven diagnostics solutions, combined with our powerful analytics capabilities and software solutions.

The Biopharma industry has become increasingly competitive as it moves toward the more precise targeting of patients in crowded disease segments, and we believe this trend positions us as a key partner for Biopharma companies to build a competitive advantage by unlocking the power of big data and enabling next generation precision medicine.

We Strive for Interconnected Strategic Relationships

We serve our Biopharma customers through a unique combination of clinical testing services, clinical and research study design and execution, and advanced data and analytics capabilities.

Our competitive advantage in this space comes from leveraging comprehensive data generated via testing, integrating these deep molecular profiles with clinical patient information, and representing this comprehensive patient data in the Centrellis platform. This enables us to create direct and real time integration of clinical and genetic data with providers connected to drug discovery research, real world evidence studies, and other therapy development opportunities. We are also able to utilize our solutions and unique data assets to enroll patients into clinical trials and to connect Biopharma partners to patient populations matching eligibility criteria for their trials, to facilitate patients receiving novel therapies still under development, and to perform broad genomic and transcriptomic sequencing on health system partner sample banks in collaboration with Biopharma partners.

In our engagement with Biopharma customers, we are focused on a range of disease conditions, including oncology, autoimmune and inflammatory disorders, and rare diseases. Our disease-agnostic approach provides us with the flexibility to support our Biopharma partners across varied therapeutic areas. We continue to work with our Biopharma partners to identify their specific needs and broaden the scope of our disease coverage accordingly.

We believe that, because of our core capabilities and differentiated approach, we are well-positioned to support next-generation drug discovery, development, and commercialization. We further believe our ability to generate deep, clinical-grade multi-omic datasets renders us a valuable genomic testing solution provider for precision medicine Biopharma products. Through direct engagement of providers and patients, we assist Biopharma partners in a patient-centric approach to research and clinical development. By obtaining and curating high-dimensional data in our Centrellis platform, we deliver novel insights that help to de-risk the development of next generation

therapeutics, provide for pharmacologic proof of concept via the integration of genomic and clinical data support, reduce development costs, enhance the patient experience, and increase speed to market.

Sema4's Solutions for BioPharma Customers

We engage with our Biopharma customers to develop and deliver unique goods and services for the particular issues that each customer faces. We believe that our Biopharma partners can realize significant value when collaborating with our team to utilize a more integrated, end-to-end solution that leverages our core set of capabilities, including longitudinal patient data, AI-driven predictive modeling, and genomics. We have demonstrated the ability to develop these deep, integrated strategic relationships with Biopharma companies. For example, our five-year collaborative study with Sanofi S.A. ("Sanofi") is centered on discovery of new insights into the biological mechanisms and other factors implicated in asthma to help drive Sanofi's next generation of asthma targets as well as to enhance Sanofi's understanding of the relevant populations for both its current and in-development therapies and the therapies marketed by others. This asthma study is currently recruiting nearly 1,200 patients, and involves comprehensive clinical characterization of patients and controls, longitudinal monitoring of patient conditions through various applications and devices, collection of biological samples for molecular profiling and generation and integration of DNA and RNA sequencing data with clinical and device acquired data. The study is also leveraging the integrated, longitudinal data to construct models of asthma to stratify patients into subtypes, and seeking to better understand treatments relevant to different subtypes or where there is unmet need for further drug discovery efforts. Along with Sanofi, we will collect traditional clinical data, genomics, immunological, environmental, and sensor data from mobile devices to enable sophisticated analyses and to include advanced causal network modeling.

In general, our Biopharma strategy focuses on three main offering areas:

- Genomic Testing and Analysis Solutions: We serve as a comprehensive clinical testing lab, offering a broad menu of molecular, cytogenic and biochemical testing services for our Biopharma partners. Our technology development group enables us to apply innovative profiling technologies such as long-read, single-cell and spatial molecular profiling approaches to help address our Biopharma partners' challenges. The data generated by these capabilities, when combined with our analytics services, can produce insights that inform on disease biology, improve and accelerate the drug development process, and help ensure that patients can be made aware of relevant treatment options.

- Data and Analytics Solutions: Centrellis enables us to provide our Biopharma partners with unique, data-driven insights that can help to accelerate the development of precision medicines, utilizing HIPAA-compliant, de-identified datasets. Using advanced analytics and causal network modeling, we work with partners to organize high-dimensional data in ways that facilitate the identification of statistically-inferred causal relationships that enable the identification, validation and prioritization of biomarkers and targets; identify molecular subtypes of disease; and predict patient disease progression, prognosis, drug response, adverse events, and other clinical outcomes. We believe that one of our particular strengths is our data science team, which is comprised of experts published in leading scientific journals. We work with collaborators, researchers, and key opinion leaders to build new models of disease and deliver insights to Biopharma partners that can further optimize their operations.

- Clinical Trial Enablement Solutions: We believe that Centrellis, combined with our active, direct engagement of patients and providers in our Women's Health and, by extension, rare disorders, Oncology, and population health solutions, positions us well to assist Biopharma partners in their clinical development activities. We have developed a number of software as a service ("SaaS") products to enable Biopharma clinical development, including a clinical trial patient matching product and a clinical trial design product that work with our longitudinal clinic-genomic dataset. Given our patient consent structure, we have the ability to re-contact patients who may benefit from a Biopharma sponsor's trial. We have developed novel, technology-enabled workflows and solutions that allow us to search for and identify relevant patients in a manner that fully maintains patient confidentiality, and work with providers to assess and enroll these patients in clinical trials. The breadth of search and precision of this method of patient recruitment can substantially improve trial timelines versus traditional recruitment methods. We also assist prominent

Biopharma partners seeking to use high-quality genomic analysis to assess patient eligibility for clinical trials. We believe our clinical testing services and data solutions make us a key partner for supporting efficient clinical trials.

Research and Development

We have invested a substantial amount of time and expense into research and development for our technology and test offerings, which requires the continuous improvement of software capabilities to analyze data and process customer orders. Our research and development efforts focus on several key areas, including multiscale biotechnology, assay development across sequencing technologies, data science and engineering, and the development of network-based models. We expect our research and development activities to increase as we innovate and expand the application of our current and future platforms including Traversa and Centrellis.

Our internationally recognized research team includes leaders in data science, network modeling, multiscale biotechnology and genomics. As noted above, our founder, president and Chief Research & Development Officer, Eric Schadt, is a world-renowned expert on constructing predictive models of disease that link molecular biology to physiology to enable clinical medicine. He has published more than 450 peer-reviewed papers in leading scientific journals, with a public citation or "h-" index of 137, and has contributed to discoveries relating to the genetic basis of common human diseases such as cancer, diabetes, obesity, and Alzheimer's disease. Under the leadership of our management team, our research team comprises more than 160 Ph.D.-level scientists, complemented by additional physician scientists and certified technicians as of December 31, 2021. Ongoing collaborations with scientists and clinicians at the Mount Sinai and other healthcare systems allows our research to remain patient-centered and clinically relevant.

Intellectual Property

We have intellectual property rights pertaining to all elements of our platforms and solutions. Our success and ability to compete depend in part on securing and preserving enforceable patent, trade secret, trademark and other intellectual property rights; operating without having competitors infringe, misappropriate or otherwise circumvent these rights; operating without infringing the proprietary rights of others; and obtaining and maintaining licenses for technology development or product commercialization.

Patents

The fields of genomic and health information analysis present limited opportunities for patent protection, based on well-known legal precedents. As result, our patent protection strategy is to protect our non-gene specific technology and our specific biomarkers. In this regard, as of December 31, 2021, we have four pending utility patent applications and one provisional patent application. The pending utility patent applications include a U.S. patent application related to a genome annotation software platform for annotating genomic intervals that are clinically relevant for analysis, a U.S. patent application related to a genetic carrier screening process, and U.S. and European patent applications related to therapeutic treatment for subjects having certain polymorphic markers associated with specific human leukocyte antigen alleles. If patents are issued from the currently pending applications, the earliest patents will begin expiring in 2040, subject to potential extensions of the patent term that will be calculated based on the length of the patent examination process.

Trade Secrets

We have a trade secrecy program to prevent disclosure of our trade secrets to others, except under stringent conditions of confidentiality when disclosure is critical to our business. We protect trade secrets and know-how by establishing confidentiality agreements and invention assignment agreements with our employees, consultants, scientific advisors, contractors, and collaborators. These agreements provide that all confidential information developed or made known during the course of an individual or entities' relationship with us must be kept confidential during and after the relationship. These agreements also provide that all inventions resulting from work performed for us or relating to our business and conceived or completed during the period of employment or assignment, as applicable, will be our exclusive property. In addition, we take other appropriate precautions, such as

physical and technological security measures, to guard against misappropriation of our proprietary information by third parties.

Although we take steps to protect our proprietary information and trade secrets, including through contractual means with our employees and consultants, third parties may independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets or disclose our technology. Accordingly, we may not be able to meaningfully protect our trade secrets. For more information regarding the risks related to our intellectual property, see the section entitled "*Risk Factors—Risks Related to Our Intellectual Property*."

Trademarks

We own various trademarks, applications and unregistered trademarks in the U.S and other commercially important markets, including our company name, product and service names and other trade or service marks. Our trademark portfolio is designed to protect the brands for our products and services, both current and in the pipeline.

Regulation

Reimbursement

Patients who have diagnostic tests ordered or are prescribed treatments by providers performing the prescribed services, generally rely on third-party payors to reimburse all or part of the associated healthcare costs. Sales of our products and services will therefore depend substantially on the extent to which the costs of our products and services will be paid by third-party payors, including health maintenance, managed care and similar healthcare management organizations, or reimbursed by government health administration authorities, such as Medicare and Medicaid and private health insurers.

In the United States, our ability to commercialize and the commercial success of our product and service offerings will depend in part on the extent to which governmental payor programs at the federal and state levels, including Medicare and Medicaid, private health insurers and other third-party payors provide coverage for and establish adequate reimbursement levels for these offerings. Government authorities, private health insurers and other organizations generally decide which devices they will pay for and establish reimbursement levels for healthcare. Medicare is a federally funded program for the elderly and disabled managed by Centers for Medicare & Medicaid Services ("CMS") through local contractors that administer coverage and reimbursement for certain healthcare items and services. Medicaid is an insurance program for certain categories of patients whose income and assets fall below state defined levels, and is funded jointly by federal and state governments and managed by each state. Similarly, the federal government manages other healthcare programs, including the Veterans Health Administration, the Indian Health Service, and Tricare, the healthcare program for military personnel, retirees, and related beneficiaries. Many states have also created pharmacy assistance programs for individuals who do not qualify for federal programs. In the U.S., private health insurers and other third-party payors often provide reimbursement for products and services based in part on the coverage and payment rates set by the Medicare or Medicaid programs.

Federal programs in the U.S. also sometimes impose price controls through mandatory ceiling prices on purchases by federal agencies and federally funded hospitals and clinics and mandatory rebates on retail pharmacy prescriptions paid by Medicaid and Tricare. These restrictions and limitations influence the purchase of healthcare services and products. Legislative proposals to reform healthcare or reduce costs under government programs may result in lower reimbursement for our products and services or exclusion of our products and services from coverage. In addition, government programs like Medicaid include what are in effect substantial penalties for increasing commercial prices of certain products over the rate of inflation which can affect realization and return on investment.

Increasing efforts by governmental and third-party payors to cap or reduce healthcare costs may cause such organizations to limit both coverage and level of reimbursement for newly approved healthcare products. At the state level, legislatures are increasingly passing legislation and implementing regulations designed to control pharmaceutical and biological program pricing, including price or patient reimbursement constraints, discounts,

restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

As a result of the above trends, we may need to conduct expensive studies in order to demonstrate the medical necessity and cost effectiveness of our products and services, in addition to the costs required to obtain FDA approvals. Our products and services may not be considered medically necessary or cost effective, or the discount percentages required to secure coverage may not yield an adequate margin over cost.

Many hospitals implement a controlled and defined process for covering and approving diagnostic tests and medical devices. Any marketing efforts that are determined to have violated such policies could result in the denial or removal of our products from that hospital's list of approved products.

Moreover, a payor's decision to provide coverage for a diagnostic product does not imply that an adequate reimbursement rate will be approved. Adequate third-party reimbursement may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment in device development. Legislative proposals to reform healthcare or reduce costs under government insurance programs may result in lower reimbursement for our products and services or exclusion of our products and services from coverage. The cost containment measures that healthcare payor and providers are instituting and any healthcare reform could significantly reduce our revenue from the sale of any approved products and services. We cannot provide any assurances that we will be able to obtain and maintain third-party coverage or adequate reimbursement for our products and services in whole or in part.

In addition, amendments to the False Claims Act impose severe penalties for the knowing and improper retention of overpayments collected from governmental payors. Within 60 days of identifying and quantifying an overpayment, a provider is required to notify CMS or the Medicare contractor of the overpayment and the reason for it and return the overpayment. These amendments could subject our procedures for identifying and processing payments to greater scrutiny. Overpayments may occur from time to time in the healthcare industry without any fraudulent intent. For example, overpayments may result from mistakes in reimbursement claim forms or from improper processing by governmental payor. We maintain protocols intended to identify any overpayments. From time to time, we may identify overpayments and be required to refund those amounts to governmental payors.

Clinical Laboratory Improvement Act

Our clinical reference laboratories in Connecticut are required to hold certain federal certificates to conduct our business. Under the Clinical Laboratory Improvement Act of 1988 ("CLIA"), we are required to hold a certificate applicable to the type of laboratory examinations we perform and to comply with standards covering personnel, facilities administration, inspections, quality control, quality assurance and proficiency testing.

As of December 31, 2021, we have a current certificate under CLIA to perform testing at our laboratory locations in Stamford and Branford, Connecticut. To renew this CLIA certificate, we are subject to survey and inspection every two years to assess compliance with program standards. Moreover, CLIA inspectors may make random inspections of our clinical reference laboratories. The regulatory and compliance standards applicable to the testing we perform may change over time, and any such changes could have a material effect on our business.

If our clinical reference laboratory is out of compliance with CLIA requirements, we may be subject to sanctions such as suspension, limitation or revocation of our CLIA certificate, as well as directed plan of correction, state on-site monitoring, civil money penalties, civil injunctive suit or criminal penalties. We must maintain CLIA compliance and certification to be eligible to bill for diagnostic services provided to Medicare and Medicaid beneficiaries. If we were to be found out of compliance with CLIA requirements and subjected to sanction, our business could be harmed.

State Laboratory Testing

We are is required to maintain a license to conduct testing in Connecticut. Connecticut laws establish standards for day-to-day operations of our laboratories in Stamford and Branford, Connecticut. If our clinical reference laboratories are out of compliance with Connecticut standards, the Connecticut Department of Health Services

("CDHS") may suspend, restrict or revoke our license to operate our clinical reference laboratories, assess substantial civil money penalties, or impose specific corrective action plans. Any such actions could materially affect our business. As of December 31, 2021, we maintain a current license in good standing with CDHS. However, we cannot provide assurance that CDHS will at all times in the future find us to be in compliance with all such laws.

Several states require the licensure of out-of-state laboratories that accept specimens from those states. For example, New York requires a laboratory to hold a permit which is issued after an on-site inspection and approval of testing methodology and has various requirements over and above CLIA and the College of American Pathologists ("CAP") Laboratory Accreditation Program, including those for personnel qualifications, proficiency testing, physical facility, equipment, and quality control standards. Our laboratory holds the required licenses for California, New York, Maryland, Pennsylvania, and Rhode Island.

Each of our clinical reference laboratories in Connecticut is required to be licensed on a test-specific basis by New York State as an out of state laboratory and our products, as laboratory-developed tests ("LDTs") must be approved by the New York State Department of Health ("NYDOH") before they are performed on samples from New York. Each Sema4 laboratory is licensed by New York, and we are currently approved for testing samples from New York. We are subject to periodic inspection by the NYDOH and we are required to demonstrate ongoing compliance with NYDOH regulations and standards.

Other states may adopt similar licensure requirements in the future, which may require us to modify, delay or stop our operations in such jurisdictions. Complying with licensure requirements in new jurisdictions may be expensive, time-consuming, and subject us to significant and unanticipated delays. If we identify any other state with such requirements, or if we are contacted by any other state advising us of such requirements, we intend to follow instructions from the state regulators as to how we should comply with such requirements.

Food and Drug Administration

Laboratory Developed Tests

We provide our tests as LDTs. CMS and certain state agencies regulate the performance of LDTs (as authorized by CLIA and state law, respectively). Historically, the FDA, has exercised enforcement discretion with respect to most LDTs and has not required laboratories that furnish LDTs to comply with the agency's requirements for medical devices (e.g., establishment registration, device listing, quality systems regulations, premarket clearance or premarket approval, and post-market controls). Nevertheless, the FDA may decide to regulate certain LDTs on a case-by-case basis at any time.

Legislative proposals addressing the FDA's oversight of LDTs have been introduced in previous Congresses, and we expect that new legislative proposals will be introduced from time-to-time. The likelihood that Congress will pass such legislation and the extent to which such legislation may affect the FDA's plans to regulate certain LDTs as medical devices is difficult to predict at this time.

If the FDA ultimately regulates certain LDTs as medical devices, whether via final guidance, final regulation, or as instructed by Congress, our tests may be subject to certain additional regulatory requirements. Complying with the FDA's requirements for medical devices can be expensive, time-consuming, and subject us to significant or unanticipated delays. Insofar as we may be required to obtain premarket clearance or approval to perform or continue performing an LDT, we cannot assure you that we will be able to obtain such authorization. Even if we obtain regulatory clearance or approval where required, such authorization may not be for the intended uses that we believe are commercially attractive or are critical to the commercial success of our tests. As a result, the application of the FDA's medical device requirements to our tests could materially and adversely affect our business, financial condition, and results of operations.

Failure to comply with applicable FDA regulatory requirements may trigger a range of enforcement actions by the FDA including warning letters, civil monetary penalties, injunctions, criminal prosecution, recall or seizure, operating restrictions, partial suspension or total shutdown of operations, and denial of or challenges to applications for clearance or approval, as well as significant adverse publicity.

Pre-Market Approval

We may obtain FDA premarket approval ("PMA") for some of our tests including its matched whole exome sequencing ("WES") and whole transcriptome sequencing ("WTS") tests. Devices subject to FDA regulation must undergo premarket review prior to commercialization unless the device is exempt from such review, and we expect that we will be required to perform non-inferiority studies showing comparable results between the Sema4 Signal WES/WTS LDT and third party, FDA-approved tests with regard to certain therapeutic drugs prescribed to ovarian cancer patients, colorectal cancer patients, and non-small cell lung cancer patients. We are currently evaluating an updated pre-submission letter to the FDA with regard to the studies necessary for ovarian cancer and is working to secure access to the subjects necessary to perform this study. With regard to the studies necessary for colorectal cancer patients and non-small cell lung cancer patients, we submitted our pre-submission package and held a pre-submission meeting with the FDA in 2020, and are working to secure access to the subjects necessary to perform this study. Further, the regulations governing the approvals place substantial restrictions on how the tests will be marketed and sold, specifically, by prescription only. In addition, as a condition of Sema4's FDA approval, we may be required to conduct post-approval studies.

Additionally, manufacturers of medical devices must comply with various regulatory requirements under the Food, Drug, and Cosmetic Act ("FDCA") and regulations thereunder, including, but not limited to, quality system regulations, unless they are exempt, facility registration, product listing, labeling requirements, and certain post-market surveillance requirements. Entities that fail to comply with FDA requirements can be liable for criminal or civil penalties, such as recalls, detentions, orders to cease manufacturing, and restrictions on labeling and promotion, among other potential sanctions.

We may develop new diagnostic products and services that are regulated by the FDA as medical devices. The regulatory review and approval process for medical devices can be costly, timely, and uncertain. This process may involve, among other things, successfully completing additional clinical trials and submitting a premarket clearance notice or filing a premarket approval application with the FDA. If premarket review is required by the FDA, there can be no assurance that our tests will be cleared or approved on a timely basis, if at all. In addition, there can be no assurance that the labeling claims cleared or approved by the FDA will be consistent with our current claims or adequate to support continued adoption of and reimbursement for our products. Ongoing compliance with FDA regulations could increase the cost of conducting our business, subject us to FDA inspections and other regulatory actions, and potentially subject us to penalties in the event we fail to comply with such requirements.

HIPAA and HITECH

Under the administrative simplification provisions of the Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), as amended by the Health Information Technology for Economic and Clinical Health Act ("HITECH"), the U.S. Department of Health and Human Services issued regulations that establish uniform standards governing the conduct of certain electronic healthcare transactions and protecting the privacy and security of protected health information used or disclosed by most healthcare providers and other covered entities and their business associates, including the business associates' subcontractors. We perform activities that may implicate HIPAA, such as providing clinical laboratory testing services and entering into specific kinds of relationships with covered entities and business associates of covered entities. As a covered entity and as a business associate of other covered entities (with whom we have entered into business associate agreements), we are required to comply with the four principal regulations with which have been issued in final form under HIPAA and HITECH: privacy regulations, security regulations, the breach notification rule, and standards for electronic transactions, which establish standards for common healthcare transactions.

The HITRUST CSF was developed to address the multitude of security, privacy, and regulatory challenges facing organizations. By including federal and state regulations, standards, frameworks, and incorporating a risk-based approach, the HITRUST CSF helps organizations address these challenges through a comprehensive and flexible framework of prescriptive and scalable security and privacy controls. The HITRUST CSF includes, harmonizes, and cross-references existing, globally recognized standards, regulations, and business requirements, including ISO, EU GDPR, NIST, and PCI. On December 10, 2021, we met the HITRUST Assurance Program

requirements for the CSF v9.4 Risk-based, 2-year (r2) certification criteria for our Centrellis Platform, for hosting and curating Patient data.

The privacy regulations cover the use and disclosure of protected health information by covered entities as well as business associates, which are defined to include subcontractors that create, receive, maintain, or transmit protected health information on behalf of a business associate. They also set forth certain rights that an individual has with respect to his or her protected health information maintained by a covered entity, including the right to access or amend certain records containing protected health information, or to request restrictions on the use or disclosure of protected health information. The security regulations establish requirements for safeguarding the confidentiality, integrity, and availability of protected health information that is electronically transmitted or electronically stored. HITECH, among other things, established certain health information security breach notification requirements. A covered entity must notify any individual whose protected health information is breached according to the specifications set forth in the breach notification rule. The HIPAA privacy and security regulations establish a uniform federal "floor" and do not supersede state laws that are more stringent or provide individuals with greater rights with respect to the privacy or security of, and access to, their records containing protected health information or insofar as such state laws apply to personal information that is broader in scope than protected health information as defined under HIPAA. Massachusetts, for example, has a state law that protects the privacy and security of personal information of Massachusetts residents.

There are significant civil and criminal fines and other penalties that may be imposed for violating HIPAA. A covered entity or business associate is also liable for civil money penalties for a violation that is based on an act or omission of any of its agents, including a downstream business associate, as determined according to the federal common law of agency. Additionally, to the extent that we submit electronic healthcare claims and payment transactions that do not comply with the electronic data transmission standards established under HIPAA and HITECH, payments to us may be delayed or denied.

Federal and State Fraud and Abuse Laws

In the U.S., there are various fraud and abuse laws with which we must comply, and we are potentially subject to regulation by various federal, state and local authorities, including CMS, other divisions of the U.S. Department of Health and Human Services including the Office of Inspector General, the U.S. Department of Justice, and individual U.S. Attorney offices within the Department of Justice, and state and local governments.

In the U.S., the federal Anti-Kickback Statute prohibits, among other things, knowingly and willfully offering, paying, soliciting or receiving remuneration, directly or indirectly, overtly, covertly, in cash or in kind to induce or in return for the furnishing, arranging for the furnishing of, purchasing, leasing, ordering or arranging for or recommending purchasing, leasing or ordering of any good, facility, service or item for which payment may be made in whole or in part by a federal healthcare program. Courts have stated that a financial arrangement may violate the Anti-Kickback Statute if any one purpose of the arrangement is to encourage patient referrals or other federal healthcare program business, regardless of whether there are other legitimate purposes for the arrangement. The definition of “remuneration” has been broadly interpreted to include anything of value, including gifts, discounts, credit arrangements, payments of cash, consulting fees, waivers of co-payments, ownership interests, and providing anything at less than its fair market value.

Although the Anti-Kickback Statute contains several exceptions, it is broad and may technically prohibit many innocuous or beneficial arrangements within the healthcare industry. Further, the U.S. Department of Health and Human Services issued a series of regulatory “safe harbors.” These safe harbor regulations set forth certain provisions, which, if met, will assure healthcare providers and other parties that they will not be prosecuted under the federal Anti-Kickback Statute. Although full compliance with the statutory exceptions or regulatory safe harbors ensures against prosecution under the federal Anti-Kickback Statute, the failure of a transaction or arrangement to fit within a specific statutory exception or regulatory safe harbor does not necessarily mean that the transaction or arrangement is illegal or that prosecution under the federal Anti-Kickback Statute will be pursued. Penalties for federal anti-kickback violations are severe, and include imprisonment, criminal fines, civil money penalties, and exclusion from participation in federal healthcare programs. Many states also have anti-kickback statutes, some of which may apply to items or services reimbursed by any third-party payor, including commercial insurers.

There are also federal laws related to healthcare fraud and false statements, among others, relating to healthcare matters. The healthcare fraud statute prohibits knowingly and willfully executing a scheme to defraud any healthcare benefit program, including private payors. A violation of this statute is a felony and may result in fines, imprisonment, or exclusion from governmental payor programs such as the Medicare and Medicaid programs. The false statements statute prohibits knowingly and willfully falsifying, concealing, or covering up a material fact, or making any materially false, fictitious, or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items, or services. A violation of this statute is a felony and may result in fines, imprisonment, or exclusion from governmental payor programs.

Another development affecting the healthcare industry is the increased enforcement of the federal False Claims Act and, in particular, actions brought pursuant to the False Claims Act's "whistleblower" or "qui tam" provisions. The False Claims Act imposes liability on any person or entity that, among other things, knowingly presents, or causes to be presented, a false or fraudulent claim for payment by a federal governmental payor program. The qui tam provisions of the False Claims Act allow a private individual to bring actions on behalf of the federal government alleging that the defendant has defrauded the federal government by submitting a false claim to the federal government and permit such individuals to share in any amounts paid by the entity to the government in fines or settlement. When an entity is determined to have violated the False Claims Act, it may be required to pay up to three times the actual damages sustained by the government, plus civil penalties ranging from $5,500 to $11,000 for each false claim.

In addition, various states have enacted false claim laws analogous to the federal False Claims Act, although many of these state laws apply where a claim is submitted to any third-party payor and not merely a governmental payor program.

Additionally, the civil monetary penalties statute imposes penalties against any person or entity that, among other things, is determined to have presented or caused to be presented a claim to a federal health program that the person knows or should know is for an item or service that was not provided as claimed or for a claim that is false or fraudulent. This law also prohibits the offering or transfer of remuneration to a Medicare or state healthcare program beneficiary if the person knows or should know it is likely to influence the beneficiary's selection of a particular provider, practitioner, or supplier of services reimbursable by Medicare or a state healthcare program, unless an exception applies.

On October 25, 2018, the Substance Use-Disorder Prevention that Promoted Opioid Recovery and Treatment for Patients and Communities Act of 2018 (the "SUPPORT Act") was enacted. The SUPPORT Act included the Eliminating Kickbacks in Recovery Act of 2018, or EKRA, which establishes an all-payor anti-kickback prohibition that extends to arrangements with recovery homes, clinical laboratories and clinical treatment facilities. EKRA includes a number of statutory exceptions, and directs agencies to develop further exceptions. Current exceptions in some cases reference and in others differ from the Anti-Kickback Statute safe harbors. Significantly, the prohibitions apply with respect to the soliciting or receipt of remuneration for any referrals to recovery homes, clinical treatment facilities, or clinical laboratories, whether or not related to treating substance use disorders. Further, the prohibitions cover the payment or offer of remuneration to induce a referral to, or in exchange for, an individual using the services of, such providers. This law creates additional risk that relationships with referral sources could be problematic.

Physician Referral Prohibitions

Under a federal law directed at "self-referral," commonly known as the "Stark Law," there are prohibitions, with certain exceptions, on referrals for certain designated health services, including laboratory services, that are covered by the Medicare program by physicians who personally, or through an immediate family member, have a financial relationship with the entity to which the referrals for designated health services are made. The prohibition also extends to payment for any testing referred in violation of the Stark Law. A person who engages in a scheme to circumvent the Stark Law's referral prohibition may be fined up to $100,000 for each such arrangement or scheme. In addition, any person who presents or causes to be presented a claim to the Medicare program in violation of the Stark Law is subject to civil monetary penalties of up to $15,000 per service, an assessment of up to three times the amount claimed and possible exclusion from participation in federal healthcare programs. In addition, any person

who presents or causes to be presented a claim to the Medicare program in violation of the Stark Law is subject to civil monetary penalties of up to $15,000 per service, an assessment of up to three times the amount claimed, and possible exclusion from participation in federal or state health care programs. Bills submitted in violation of the Stark Law may not be paid by Medicare, and any person collecting any amounts with respect to any such prohibited bill is obligated to refund such amounts. Many states have comparable laws that are not limited to Medicare referrals. The Stark Law also prohibits state receipt of Federal Medicaid matching funds for prohibited referrals, but this provision of the Stark Law has not been implemented by regulations. In addition, some courts have held that the submission of claims to Medicaid that would be prohibited as self-referrals under the Stark Law for Medicare could implicate the False Claims Act.

Corporate Practice of Medicine

Numerous states have enacted laws prohibiting business corporations, such as Sema4, from practicing medicine and employing or engaging physicians to practice medicine, generally referred to as the prohibition against the corporate practice of medicine. These laws are designed to prevent interference in the medical decision-making process by anyone who is not a licensed physician. For example, California's Medical Board has indicated that determining what diagnostic tests are appropriate for a particular condition and taking responsibility for the ultimate overall care of the patient, including providing treatment options available to the patient, would constitute the unlicensed practice of medicine if performed by an unlicensed person. Violation of these corporate practice of medicine laws may result in civil or criminal fines, as well as sanctions imposed against us and/or the professional through licensure proceedings. Typically, such laws are only applicable to entities that have a physical presence in the state.

Genetic Privacy and Testing Laws

We are subject to myriad laws designed to establish safeguards regarding the conduct of genomic testing and analysis and to protect against the misuse of genetic information and human biological specimens, collectively, "samples," from which genetic information can be derived. These laws vary in their scope and in the nature of their requirements and restrictions. For example, certain genetic privacy laws prohibit the retention of samples after performing a genomic analysis in addition to prohibiting the use or disclosure of genetic information for certain purposes, such as research, without appropriate informed consent from the individual or without sufficient anonymization. The applicability of such informed consent requirements may also depend on the identifiability of the genetic information or sample and the purposes of which it is used. Other laws may impose additional requirements, including requirements regarding institutional review board review and approval for certain research uses of genetic information or samples requirements to implement certain security controls in connection with the transfer of genetic information. We must comply with such genetic privacy and testing laws in our collection, use, disclosure, and retention of genetic information and samples.

Other Health and Medical Regulations

The federal physician payment transparency requirements ("Physician Payments Sunshine Act") and its implementing regulations, which requires applicable manufacturers of covered drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the State Children's Health Insurance Program, with certain exceptions, to annually report to HHS information related to certain payments or other transfers of value made or distributed to physicians, defined to include doctors, dentists, optometrists, podiatrists and chiropractors, and teaching hospitals, or to entities or individuals at the request of, or designated on behalf of, the physicians and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members. The SUPPORT Act, under a provision entitled "Fighting the Opioid Epidemic with Sunshine," extends the Physician Payments Sunshine Act to payments and transfers of value to physician assistants, nurse practitioners and other mid-level healthcare providers, with reporting requirements going into effect in 2022 for payments and transfers of value made to these practitioners in 2021.

In addition to its comprehensive regulation of health and safety in the workplace in general, the Occupational Safety and Health Administration has established extensive requirements aimed specifically at laboratories and other healthcare-related facilities. In addition, because our operations require employees to use certain hazardous

chemicals, we also must comply with regulations on hazard communication and hazardous chemicals in laboratories. These regulations require us, among other things, to develop written programs and plans, which must address methods for preventing and mitigating employee exposure, the use of personal protective equipment, and training.

Our commercialization activities subject us to regulations of the Department of Transportation, the U.S. Postal Service, and the Centers for Disease Control and Prevention that apply to the surface and air transportation of clinical laboratory specimens.

We are also subject to applicable state billing laws. Some states require that payment be made only to the person or entity who performed or supervised the service, while other states have passed anti-mark up and disclosure laws, an alternative but less enforceable approach to direct billing. Under these laws the non-performing person or entity is allowed to bill the client, but is prohibited from marking up the service, and required to disclose each charge to the patient, or patient's insurer. Additionally, some states have strictly passed disclosure laws that require the non-performing person or entity to disclose to patients or the patient's insurer the actual charges for all laboratory services.

Privacy and Data Protection Laws

There are a growing number of jurisdictions all over the world that have privacy and data protection laws. These laws are typically triggered by a company's establishment or physical location in the jurisdiction, data processing activities that take place in the jurisdiction, and/or the processing of personal information about individuals located in that jurisdiction. Certain international privacy and data protection laws, such as those in the European Union, can be more restrictive and prescriptive than those in the U.S., while other jurisdictions can have laws less restrictive or prescriptive than those in the U.S. Enforcement of these laws vary from jurisdiction to jurisdiction, with a variety of civil or criminal penalties, or private rights of action.

The European Union's General Data Protection Regulation ("GDPR") took effect on May 25, 2018. The GDPR extraterritorially applies to a business outside the European Union that offers goods or services to, or monitors the behavior of individuals who are located in the European Union. The GDPR imposes strict requirements on controllers and processors of personal data, including enhanced protections for "special categories" of personal data, which includes sensitive information such as health and genetic information of data subjects in the European Union. The GDPR also grants individuals various rights in relation to their personal data including the rights of access, rectification, objection to certain processing and deletion. The GDPR provides an individual with an express right to seek legal remedies if the individual believes his or her rights have been violated. Failure to comply with the requirements of the GDPR or the related national data protection laws of the member states of the European Union, which may deviate from or be more restrictive than the GDPR, may result in significant administrative fines issued by European Union regulators.

As of December 31, 2020, The United Kingdom of Great Britain and Northern Ireland ("UK") are no longer subject to EU law. Therefore, the GDPR will be brought into UK law as the 'UK GDPR' via a statutory instrument which will make technical amendments to the GDPR so that it works in a UK-only context. In Europe, there are also national laws that provide additional controls around the processing of health data.

The Payment Card Industry Data Security Standard ("PCI DSS") was issued by the Payment Card Industry Security Standards Council and establishes industry standards for the processing of payment card information. While the PCI DSS requirements do not have the force of law, the penalties for noncompliance could include exclusion from payment card systems. To the extent that we collect payment card information when receiving payments of insurance premiums or payments for our products or services, we comply with PCI DSS as applicable to our payment environment and PCI DSS merchant level, which is determined by our volume of payment card transactions per year.

FTC Act

As an entity regulated by the Federal Trade Commission ("FTC"), we are subject to the FTC's enforcement power under Section 5 of the Federal Trade Commission Act ("FTC Act"). The FTC has policed privacy and data security through its broad power under Section 5 of the FTC Act. Under Section 5, "unfair or deceptive acts or

practices in or affecting commerce, are hereby declared unlawful." Deceptive trade practices are defined by the FTC as material representations, omissions or practices that are likely to mislead a consumer acting reasonably in the circumstances to the consumer's detriment. The FTC defines an "unfair" trade practice as one that "causes or is likely to cause substantial injury to consumers which is not reasonably avoidable by consumers themselves and is not outweighed by countervailing benefits to consumers or competition."

The FTC has refrained from providing a checklist of uniformly acceptable data security practices or focusing on one single practice as actionable. Instead, the FTC has taken a holistic approach and relied on industry standards and other norms to identify a particular set of practices that, taken together, constitute adequate security practices for companies collecting personal information. In evaluating whether a data security practice is unfair, the FTC focuses largely on "substantial injury to consumers." The harm need not be monetary or physical, though such injuries are commonly considered "substantial." Further, the harm can consist of a risk rather than an actual loss.

CAN-SPAM Act

The Controlling the Assault of Non-Solicited Pornography and Marketing Act of 2003 ("CAN-SPAM Act") establishes rules for commercial electronic mail messages, gives recipients the right to opt out of certain messages, and establishes penalties for violations. We comply with the CAN-SPAM Act in connection with our transmittal of commercial electronic mail messages ("Commercial Email Messages"). Commercial Email Messages do not include emails that are informational or are transactional or relationship messages.

TCPA

The Telephone Consumer Protection Act of 1991 ("TCPA") restricts the making of telemarketing calls and the use of automatic telephone dialing systems, artificial or prerecorded voice messages, SMS text messages, and facsimile transmissions. It also specifies several technical requirements for fax machines, autodialers, and voice messaging systems, principally with provisions requiring identification and contact information of the entity using the device to be contained in the message. We comply with TCPA in connection with our transmittal of automated, artificial, or prerecorded phone calls, SMS text messages, facsimile transmissions, and push notifications.

California Consumer Privacy Act

The California Consumer Privacy Act ("CCPA") is a comprehensive consumer privacy law that took effect on January 1, 2020, and regulates how certain for-profit businesses that do business in California collect, use, and disclose the personal information of consumers who reside in California. Among other things, the CCPA confers to California consumers the right to receive notice of the categories of personal information to be collected by a business, how the business will use and share the personal information, and the third parties who will receive the personal information; the rights to access, delete, or transfer personal information; and the right to receive equal service and pricing from a business after exercising a consumer right granted by the CCPA. In addition, the CCPA allows California consumers the right to opt out of the "sale" of their personal information, which the CCPA defines broadly as any disclosure of personal information to a third party in exchange for monetary or other valuable consideration. The CCPA also requires a business to implement reasonable security procedures to safeguard personal information against unauthorized access, use, or disclosure.

The CCPA does not apply to personal information that is protected health information under HIPAA. The CCPA also does not apply to a HIPAA covered entity to the extent that the covered entity maintains patient information in the same manner as protected health information. We are subject to the CCPA with respect to personal information we collect from California consumers that is neither protected health information under HIPAA nor patient information that we maintain in the same manner as protected health information.

The California Attorney General has authority to enforce the CCPA and its implementing regulations against covered businesses beginning on July 1, 2020. The CCPA provides for civil penalties for violations, as well as private right of action for data breaches that result from a business' failure to implement reasonable security procedures.

Competition

Our competitors include companies that offer molecular genetic testing and other clinical diagnostic, life science research, drug discovery services, data services and healthcare analytics, and consumer genetics products. Principal competitors include companies such as Myriad Genetics, Inc., Ambry Genetics Corporation, Color Genomics, Inc., Invitae Corporation, Natera, Inc., Tempus Labs, Inc., Quest Diagnostics, Inc., Laboratory Corporation of America Holdings (or LabCorp), Exact Sciences Corp., 10x Genomics, Inc., Guardant Health, Inc., and Adaptive Biotechnologies, Twist Biosciences Corp., and Schrödinger, Inc., as well as other commercial and academic diagnostic and analytic service providers. In addition to the companies that currently offer traditional genetic testing services and research centers, other established and emerging healthcare, information technology and service companies may commercialize competitive products including informatics, analysis, integrated genetic tools and services for health and wellness.

We believe the principal competitive factors in our market are:

- Patient-centric approach;
- Breadth, depth, and quality of data assets;
- Price and quality of tests;
- Turnaround time of testing results;
- Coverage and reimbursement arrangements with third-party payors;
- Depth and clinical applicability of interpretive insights;
- Degree of utility of patient and provider facing applications;
- Breadth of interpretive insights beyond just one episode of care;
- Convenience of testing;
- Brand recognition of test provider;
- Additional value-added services and informatics tools;
- Accessibility of results;
- Client service;
- Quality of website content; and
- Reliability

We believe that we compare favorably with our competitors on the basis of these factors. However, many of our competitors and potential competitors have longer operating histories, larger customer bases, greater brand recognition and market penetration, substantially greater financial, technological and research and development resources and selling and marketing capabilities, more experience dealing with third-party payors. As a result, they may be able to respond more quickly to changes in customer requirements, devote greater resources to the development, promotion and sale of their tests than Sema4 does, or sell their tests at prices designed to win significant levels of market share. We may not be able to compete effectively against these organizations.

Environmental Matters

Our operations require the use of hazardous materials (including biological materials) that subject us to a variety of federal, state, and local environmental and safety laws and regulations. Some of these regulations provide for strict liability, holding a party potentially liable without regard to fault or negligence. We could be held liable for damages and fines as a result of our, or our partners', business operations should contamination of the environment

or individual exposure to hazardous substances occur. We cannot predict how changes in laws or new regulations will affect our business operations or the cost of compliance.

Raw Materials and Suppliers

We rely on a limited number of suppliers, or, in some cases, sole suppliers, including Agilent Technologies, Inc., Illumina, Inc., Life Technologies Corporation, Agena Biosciences, Inc., MRC-Holland, Asuragen Inc., PerkinElmer Health Sciences, Inc., Fisher Scientific, Integra Biosciences Corporation, Thomas Scientific, Qiagen Inc., USA Scientific, Inc., Promega Corporation, Integrated DNA Technologies Incorporated, and Kapa Biosystems Inc., for certain laboratory reagents, as well as sequencers and other equipment and materials which we use in our laboratory operations. Our laboratory operations could be interrupted if we encounter delays or difficulties in securing these reagents, sequencers or other equipment or materials, and if we cannot obtain an acceptable substitute. Any such interruption could significantly affect our business, financial condition, results of operations and reputation. We believe that there are only a few other manufacturers that are currently capable of supplying and servicing the equipment necessary for our laboratory operations, including sequencers and various associated reagents. The use of equipment or materials provided by these replacement suppliers would require us to alter our laboratory operations. Transitioning to a new supplier would be time consuming and expensive, may result in interruptions in our laboratory operations, could affect the performance specifications of its laboratory operations or could require that we revalidate our tests. We cannot assure you that we would be able to secure alternative equipment, reagents, and other materials, or bring such equipment, reagents, and materials online and revalidate them without experiencing interruptions in our workflow. If we encounter delays or difficulties in securing, reconfiguring, or revalidating the equipment and reagents we require for our tests, our business and reputation could be adversely affected.

Customers

We provide our health information products and services to a broad range of customers, including health plans (including managed care organizations and other health insurance providers); clinicians; hospitals; employers; patients; federally qualified health centers; and Biopharma companies. In addition, during 2020 and 2021, the customers for our COVID-19 tests included state governments.

Depending on the billing arrangement and applicable law, the clinician or healthcare entity that orders our products or services may not be responsible for paying for the products or services ordered for their patients. In certain circumstances, the patient may be responsible for payment, and in others we seek payment from third party payers, such as a commercial health insurance company, Medicare or a Medicaid program, pursuant to contracts established between us and such third parties.

During 2021, reimbursement from health plans represented 79% and 76% of our diagnostic test revenue and total revenue, respectively. In 2021, two health plans each represented 10% or more of our consolidated total revenue, and no other health plans or other customers represented 10% or more of our consolidated total revenue.

Human Capital

Sema4 is mission driven. Our employees are passionate about changing healthcare and impacting lives. We attract entrepreneurs who are comfortable with ambiguity and thrive on innovation and thoughtful discourse. We empower our employees to iterate and rapidly execute on ideas.

It is our People Team’s mission to connect people to purpose. We achieve this through enablement of excellence across the employment journey, through stewardship of an engaged and inclusive culture, by growing individual, team and organizational capability, in delivering simplification and innovation, and by sharing data-driven people insights that transform our organization. All of this is in service of driving our business forward and optimizing patient health outcomes.

We are delivering a competitive package of compensation and benefits that aims to attract and retain strong talent, in a very competitive talent marketplace. As of December 31, 2021, we had approximately 1,200 employees, of which 54% are women and 46% are men. Our headcount grew by approximately 33% in 2021, and we hired

approximately 500 employees in that timeframe, as a part of scaling our operations in connection with our transition to a public company and meeting our strategic priorities.

Our Diversity and Inclusion Council seeks to improve diversity, inclusion, equality, and global understanding by promoting dialogue, encouraging respectful understanding, providing information, participating in policy development, overseeing diversity education and training, and helping to foster respect for all employees. In 2022, we will be hosting our inaugural BIPOC Initiative Genomics Symposium, inviting select Ph.D. students and post doctorates for a two-day research symposium to strengthen our diverse hiring practices. Each attendee will present their original research, and will learn about science and career opportunities at Sema4.

We believe that our corporate culture fosters innovation, creativity, and teamwork. In this past year, we launched several programs and processes, which intend to help build a driven culture of alignment, development, compliance, and respect. We are in our second year of formal performance management processes, which are used to drive organizational alignment and includes tracking top-down business priorities and people development goals. The launch of two promotion cycles focus and enable employee career growth and mobility. We also implemented formal people manager learning, in order to build stronger people management skills for our leaders. We have optimized processes and transformed our people management solution in order to have greater systems capability, access to robust reporting, and to strengthen our analytical horsepower.

We have implemented a comprehensive compliance infrastructure, which advises Sema4 individuals and business affiliates on how to prevent, detect, report, and resolve matters of fraud, waste, threats, and abuse related to institutional policies and federal, state, and local laws and regulations. We have implemented various committees, councils and boards such as the Diversity & Inclusion Council, Data Governance Board, and IRB Review Board. These groups provide guidance for our employees, to empower them to perform according to our legal and ethical standards. We observe legal, regulatory, and industry trends and comprehensively adapt internal policies and practices as needed. We educate our Board members, executives, and other key employees about conflicts of interest and advise how to prevent and detect potential or actual conflicts of interest to safeguard from inappropriate external influence or impropriety.

We look to further strengthen our people infrastructure in 2022 through enhanced engagement surveys, values and behaviors programming, and formal talent reviews, with development planning.

Properties

Our corporate headquarter is located at 333 Ludlow Street, North Tower, 8th Floor, Stamford, Connecticut 06902. Material lease agreements include offices and laboratory facilities as shown in the table below. We believe that our current facilities are suitable and adequate to meet our current needs.

Legal Proceedings

In connection with the Acquisition, two lawsuits were filed in federal courts against us and our directors. The complaints assert claims under Section 14(a) and Section 20(a) of the Exchange Act, and Rule 14a-19 promulgated thereunder, generally allege that the proxy statement we mailed to our stockholders in connection with the approval of certain matters related to the Acquisition misrepresented and/or omitted certain purportedly material information, and seek a variety of equitable and injunctive relief. In addition, five purported stockholders of our company have sent us demand letters making similar allegations about the proxy statement and demanding we provide supplemental disclosures. Although we believe that these allegations, claims and demands are without merit, we cannot predict the outcome of these legal proceedings, or whether additional stockholders will file lawsuits.

MANAGEMENT

The following table sets forth the names, ages as of April 29, 2022, and certain other information regarding our executive officers and directors:

Name	Age	Position
Executive Officers:		
Katherine Strueland	46	Chief Executive Officer and Director
Jason Ryan	47	Executive Chairman and Director
Isaac Ro	44	Chief Financial Officer
Eric Schadt, Ph.D.	57	President, Chief Research & Development Officer and Director
Daniel Clark, J.D.	42	Secretary and General Counsel
Anthony Prentice	49	Chief Product Officer
Kareem Saad	43	Chief Business Officer
Karen White	51	Chief People Officer
Non-Employee Directors:		
Dennis Charney, M.D.[5]	71	Director
Eli D. Casdin[4][6]	48	Director
Emily Leproust, Ph.D.[5]	49	Director
Keith A. Meister[1]	48	Director
Michael Pellini, M.D.	56	Director
Richard C. Pfenniger, Jr.	66	Director
Joshua Ruch[2][4]	72	Director
Rachel Sherman, M.D., M.P.H., F.A.C.P.[3][6]	64	Director

(1) Chair of the Audit Committee
(2) Chair of the Compensation Committee
(3) Chair of the Nominating and Corporate Governance Committee
(4) Member of the Nominating and Corporate Governance Committee
(5) Member of the Audit Committee
(6) Member of the Compensation Committee

Executive Officers

Katherine Stueland has served as our Chief Executive Officer and as a member of our Board since April 2022. Previously, Ms. Stueland served as the President and Chief Executive Officer of GeneDx from June 2021 to the closing of the Acquisition. Prior to joining GeneDx, Ms. Stueland served as the Chief Commercial Officer at Invitae Corporation, a biotechnology company, from October 2016 to June 2021 and as the Head of Communications and Investor Relations at Invitae Corporation from November 2013 to October 2016, during which time she helped Invitae Corporation transition from a private to a public company. Ms. Stueland previously served as the Principal at Vivo Communications, a technology company, from January 2013 to December 2013, and as the Vice President of Communications and Investor Relations at Dendreon Corporation, a biotechnology company, from September 2009 to June 2012. Ms. Stueland previously served on the board of the Rivkin Center, a non-profit organization dedicated to the treatment and prevention of cancer in women. Ms. Stueland earned a B.S. in English language and literature from Miami University of Ohio. Ms. Stueland's extensive leadership experience as an executive officer of biotechnology companies and knowledge of GeneDx's business provide her with the qualifications and skills to serve as a director on our Board.

Jason Ryan has served as a member of our Board since July 2021, and as our Executive Chairman since January 2022. Mr. Ryan served as Chief Operating and Financial Officer of Magenta Therapeutics, Inc., a biotechnology company, from January 2019 to November 2020. Prior to joining Magenta Therapeutics, Inc., Mr. Ryan previously served as Chief Financial Officer of Foundation Medicine, Inc., a molecular information company

which became a wholly-owned subsidiary of Roche Holdings, Inc., from March 2015 to November 2018. Prior to his position as Chief Financial Officer of Foundation Medicine, Inc., Mr. Ryan served in various other finance roles at Foundation Medicine, including as Senior Vice President of Finance. Prior to joining Foundation Medicine, Inc., Mr. Ryan led the finance and strategic planning functions of various other life science companies including Taligen Therapeutics, Inc., Codon Devices Inc. and Genomics Collaborative, Inc. Mr. Ryan joined the board of directors of Singular Genomics Systems, Inc. in April 2021, and previously served on the board of directors of ArcherDX, Inc. (which was acquired by Invitae Corporation) from April 2020 to October 2020. He began his career at Deloitte & Touche LLP. Mr. Ryan holds an M.B.A. from Babson College and a B.S. in economics from Bates College, and earned a C.P.A. in Massachusetts. Mr. Ryan's extensive finance experience and his leadership experience in the life sciences and biopharmaceutical industries qualifies him to serve as a director on our Board.

Isaac Ro has served as our Chief Financial Officer since July 2021. Mr. Ro previously served as Legacy Sema4's Chief Financial Officer from February 2021 to July 2021. Mr. Ro previously served as the Chief Financial Officer of Thrive Earlier Detection Corp., a company focused on early detection cancer screening, from June 2019 to February 2021, through Thrive's sale to Exact Sciences Corporation in January 2021. From July 2010 to June 2019, Mr. Ro held roles of increasing responsibility at Goldman Sachs leading the U.S. Medical Technology team, including as Vice President. Prior to Goldman Sachs, Mr. Ro served as a Director at SVB Leerink from June 2004 to July 2010. Mr. Ro holds a B.A. in History, with honors, from Middlebury College.

Eric Schadt, Ph.D., has served as our President and Chief Research & Development Officer since April 2022 and as a member of our Board since July 2021. Dr. Schadt previously served as our Chief Executive Officer from July 2021 to the closing of the Acquisition. Dr. Schadt was the founder of Legacy Sema4 and previously served as its Chief Executive Officer and as a member of its board of directors from June 2017 to July 2021. Dr. Schadt also serves as the Dean for Precision Medicine, and Mount Sinai Professor in Predictive Health and Computational Biology at the Icahn School of Medicine at Mount Sinai. Dr. Schadt was previously Founding Director of the Icahn Institute for Genomics and Multiscale Biology from September 2011 to June 2017, and Professor and Chair of the Department of Genetics and Genomic Sciences from August 2011 to June 2017. Dr. Schadt previously served as the Chief Scientific Officer at Pacific Biosciences of California, a biotechnology company, from May 2009 to July 2012, and as an Executive Director at Merck from July 2001 to May 2009. Dr. Schadt also currently serves on numerous boards of directors and scientific advisory boards for various private companies. Dr. Schadt earned his Ph.D. from the University of California, Los Angeles, his M.A. from the University of California, Davis, and his B.S. from California Polytechnic State University-San Luis Obispo. Dr. Schadt's expertise in computational biology, genomics, health systems operating experience, and knowledge of Sema4's business, years of senior management experience at a biotechnology company, and his service as a director of other biopharmaceutical companies provide him with the qualifications and skills to serve as a director on our Board.

Daniel Clark, J.D., has served as our General Counsel since July 2021. Mr. Clark previously served as Legacy Sema4's General Counsel from March 2016 to July 2021 and Secretary from March 2016 to July 2021. From 2015 to May 2017, Mr. Clark served as the Senior Contracts Manager – Genetics & Genomics at Mount Sinai Innovation Partners. Prior to joining Mount Sinai Innovation Partners, Mr. Clark practiced with two leading law firms in New York, clerked for Judge Frederic Block in the Eastern District of New York, and helped found a boutique startup law firm. Mr. Clark received his J.D. from the University of Michigan School of Law, cum laude, and his B.A. in Economics and Philosophy from Pomona College, cum laude. Mr. Clark also traveled as a Thomas J. Watson Fellow.

Anthony Prentice has served as our Chief Product Officer since July 2021. Mr. Prentice previously served as Legacy Sema4's Chief Product Officer from September 2016 to July 2021. Prior to joining Sema4, Mr. Prentice served in various roles of increasing responsibility at American Express from May 2005 to September 2016, including as the Vice President of Mobile Payments from August 2011 to September 2016 and as the Vice President of Gold Card Product Management from April 2010 to October 2011. Prior to joining American Express, Mr. Prentice served as the Director of Category Management at Starbucks Corp from 2002 to 2005, and as an Engagement Manager at McKinsey & Company from 1998 to 2002. Mr. Prentice earned an M.B.A. from Columbia University and his B.S. in Mechanical Engineering from Cornell University.

Kareem Saad has served as our Chief Business Officer since July 2021. Mr. Saad previously served as Legacy Sema4's Chief Business Officer from January 2021 to July 2021. Mr. Saad also previously served as the Chief Strategy Officer at Sema4 from October 2017 to January 2020. Prior to rejoining Sema4, Mr. Saad served as the President and Chief Operating Officer of Apervita, Inc., a healthcare technology company, from February 2020 to January 2021. Mr. Saad previously served as the Chief Commercial Officer and EVP of Strategy and Business Development of SourceMed, a healthcare technology company, between January 2015 and June 2017. Prior to joining SourceMed, Mr. Saad served as a National Sales Director and Manager in Dell's Healthcare and Life Sciences division between June 2009 and July 2013, and as a Business Segment Executive in IBM's Healthcare Life Sciences group from November 2001 to February 2006. Mr. Saad received an M.B.A. with a concentration in Economics and Finance from the University of Chicago and a B.S. in Biochemistry and Molecular Biology with a minor in Computer Science from the University of British Columbia.

Karen White has served as our Chief People Officer since July 2021. Ms. White previously served as Legacy Sema4's Chief People Officer from September 2020 to July 2021. Prior to joining Sema4, Ms. White was Vice President of Human Resources for Commercial Solutions at Syneos Health, Inc., a biopharmaceutical outsource services organization, from June 2016 to September 2020. Prior to the merger of inVentiv Health, Inc. and INC Research Holdings, Inc. in August 2017, and later rebranding to Syneos Health in January 2018, Ms. White served as Managing Director of Human Capital at inVentiv Health from June 2016 to August 2017. Prior to that, Ms. White served as Director of Talent Development at Memorial Sloan Kettering Cancer Center where she was employed from October 2011 to June 2016. Before October 2011, Ms. White held various positions at large global organizations such as Goldman Sachs Group Inc., International Business Machines Corp., and PricewaterhouseCoopers. Ms. White earned her M.B.A. from The George Washington University and her B.A. from Hobart and William Smith Colleges.

Non-Employee Directors

Dennis Charney, M.D., has served as a member of our Board since July 2021, and previously served as a member of Legacy Sema4's board of directors from June 2017 to July 2021. Dr. Charney has served as the Anne and Joel Ehrenkranz Dean of the Icahn School of Medicine at Mount Sinai since March 2007, and as President for Academic Affairs for the Mount Sinai Health System since September 2013. From March 2005 to March 2007, Dr. Charney served as Dean for Academic and Scientific Affairs of the Icahn School of Medicine at Mount Sinai and Senior Vice President for Health Services of The Mount Sinai Medical Center. From 2007-2013, Dr. Charney served as the Dean of the School and Executive Vice President for Academic Affairs of the Medical Center. Dr. Charney first joined the Icahn School of Medicine at Mount Sinai in 2004 as Dean of Research. Prior to joining the Icahn School of Medicine at Mount Sinai, Dr. Charney led the Mood and Anxiety Disorder Research Program and the Experimental Therapeutics and Pathophysiology Branch at the National Institute of Mental Health, and he served as Professor of Psychiatry with tenure at Yale University from January 1990 to January 2000. Dr. Charney received his M.D. from Penn State College of Medicine and his B.A. from Rutgers University. Dr. Charney completed a residency in clinical psychiatry at Yale University School of Medicine and a fellowship in biological psychiatry at Connecticut Mental Health Center. Dr. Charney's extensive medical and clinical experience in the biotechnology industry qualifies him to serve as a director on our Board.

Eli D. Casdin has served as a member of our Board since July 2020, and from, previously served as the Chief Executive Officer of CMLS from July 2020 to July 2021. Mr. Casdin founded Casdin Capital, LLC, an investment firm focused on the life sciences and healthcare industry, in November 2011 and currently serves as its Chief Investment Officer. Mr. Casdin also serves on the boards of directors of SomaLogic, Inc., a protein biomarker discovery and clinical diagnostics company (formerly, CM Life Sciences II Inc., a special purpose acquisition company ("CMLS II")), since September 2021 (having previously served as the Chief Executive Officer of CMLS II from February 2021 to September 2021), and EQRx, Inc., a pharmaceutical company (formerly, CM Life Sciences III Inc., a special purpose acquisition company ("CMLS III")), since December 2021 (having previously served as the Chief Executive Officer of CMLS III from February 2021 to December 2021). In addition, Mr. Casdin serves on the boards of directors of Century Therapeutics, Inc., a biotechnology company, since February 2021, Absci Corp, a drug and target discovery company, since December 2020, and Tenaya Therapeutics, Inc., a biotechnology company, since August 2019, and previously served on the board of directors of Exact Sciences Corp., a molecular diagnostics company focused on early cancer detection, treatment and monitoring, from October

2017 to September 2020. Mr. Casdin holds an M.B.A. from Columbia Business School and a B.S. degree from Columbia University School of General Studies. Mr. Casdin's qualifications to serve on our Board include his extensive leadership experience as an executive officer of an investment firm, his extensive public and private company directorship experience in the life sciences and healthcare sectors, and his expertise in finance, capital markets, and the biotechnology industry.

Emily Leproust, Ph.D., has served as a member of our Board since September 2020. Dr. Leproust has been President and Chief Executive Officer of Twist Bioscience Corp., a biotechnology company, since co-founding Twist in 2013. Since October 2018, she has also served as Chair of the board of directors for Twist. Prior to co-founding Twist, Dr. Leproust served in various positions at Agilent Technologies, Inc., an analytical instrumentation development and manufacturing company, most recently as its Director, Applications and Chemistry R&D from February 2009 to April 2013. Dr. Leproust holds a Ph.D. in Organic Chemistry from the University of Houston and a M.Sc. in Industrial Chemistry from the Lyon School of Industrial Chemistry. Dr. Leproust's qualifications to serve on our Board include her extensive professional and educational experience in the life sciences industry.

Keith Meister has served as a member of our Board since January 2022, and previously served as the Chairman of the Board of CMLS from July 2020 to July 2021. He founded Corvex Management LP, a New York based investment manager, in December 2010 and since its inception has served as its Managing Partner and Chief Investment Officer. From 2003 to 2010, Mr. Meister served as Chief Executive Officer and then Principal Executive Officer and Vice Chairman of the Board of Icahn Enterprises L.P. (Nasdaq: IEP), the primary investment vehicle for Carl Icahn. In addition, Mr. Meister previously served as Chairman of CMLS II from December 2020 to September 2021 and CMLS III from January 2021 to December 2021. Mr. Meister also serves on the Board of Directors of MGM Resorts International (NYSE: MGM), a global hospitality and entertainment company, and its affiliate Roar Digital. Mr. Meister has previously served on the Board of Directors of numerous other public companies in his career, including Yum! Brands Inc. (NYSE: YUM), The Williams Companies, Inc. (NYSE: WMB), ADT, Inc. (NYSE: ADT), Ralcorp Holdings, Inc. and Motorola, Inc. (now Motorola Solutions, Inc., NYSE: MSI/Motorola Mobility, Inc.). He is Chairman of the board of the Harlem Children's Zone and also serves on the board of trustees of the American Museum of Natural History. Mr. Meister holds a B.A. degree in government from Harvard College where he graduated cum laude. His qualifications to serve on our board of directors include his extensive leadership experience as managing partner and executive officer of an investment firm and a diversified holding company, his extensive public company directorship experience in a variety of industries, and his expertise in finance, capital markets, strategic development, and risk management.

Michael Pellini, M.D., has served as a member of our Board since July 2021, and previously served as a member of Legacy Sema4's board of directors from August 2019 to July 2020. Since December 2017, Dr. Pellini has served as a Managing Partner of Section 32, LLC, a technology and life sciences-based venture capital fund. Dr. Pellini held roles of increasing responsibility at Foundation Medicine, Inc., a molecular information company, which was acquired by F. Hoffmann-La Roche Ltd. in 2018, from May 2011 until its acquisition, including as Chairman of the board of directors, Chief Executive Officer and President. From April 2008 to April 2011, Dr. Pellini held the position of President and Chief Operating Officer at Clarient, Inc., a medical diagnostic services company, which was acquired by General Electric Healthcare Company in 2010, and also served on Clarient's board of directors from May 2007 to April 2009. Dr. Pellini also previously served as Vice President, Life Sciences at Safeguard Scientifics, Inc., a private equity and venture capital firm from March 2007 to April 2008. Dr. Pellini currently serves as a member of the board of directors of Adaptive Biotechnologies Corporation, the GO2 Foundation, the Personalized Medicine Coalition, Singular Genomics Systems, Inc., the Mission Hospital Foundation and several private companies. Dr. Pellini earned an M.D. from Jefferson Medical College (now the Sidney Kimmel Medical College of Thomas Jefferson University), an M.B.A. from Drexel University, and a B.A. in Economics from Boston College. Dr. Pellini's broad experience in the technology, health care and life sciences industries as an investor, and his years of senior management experience at public biotechnology companies, provides him with the qualifications and skills to serve as a director on our Board.

Richard C. Pfenniger, Jr. has served as a member of our Board since April 2022. Mr. Pfenniger is a private investor and has previously served as Interim CEO of Vein Clinics of America, Inc., a privately held company that specializes in the treatment of vein disease, from May 2014 to February 2015 and as Interim CEO of IntegraMed America, Inc., a privately held company that manages outpatient fertility medical centers, from January 2013 to June

2013. He served as Chief Executive Officer and President for Continucare Corporation, a provider of primary care physician and practice management services, from 2003 until 2011, and served as Chairman of the Board of Directors of Continucare Corporation from 2002 until 2011. Previously, Mr. Pfenniger served as the Chief Executive Officer and Vice Chairman of Whitman Education Group, Inc. from 1997 through June 2003. Prior to joining Whitman, he served as the Chief Operating Officer of IVAX from 1994 to 1997, and, from 1989 to 1994, he served as the Senior Vice President-Legal Affairs and General Counsel of IVAX Corporation. Prior thereto he was engaged in the private practice of law. Mr. Pfenniger currently serves as a director of OPKO Health, Inc., a medical test and medication company focused on diagnostics and pharmaceuticals, GP Strategies Corporation, a corporate education and training company, and Asensus Surgical, Inc., a medical device company. He also serves as the Vice Chairman of the Board of Trustees and as a member of the Executive Committee of the Phillip and Patricia Frost Museum of Science. Mr. Pfenniger previously served as a director of BioCardia, Inc., clinical-stage regenerative medicine company developing novel therapeutics for cardiovascular diseases, IntegraMed America, Inc., a private specialty healthcare services company offering products and services to patients and providers in the fertility and vein care segments of the health industry, Vein Clinics of America and Wright Investors' Services Holdings, Inc., an investment management and financial advisory firm. Mr. Pfenniger's experience as a chief executive officer, chief operating officer and general counsel, and knowledge of the healthcare business provide him with the qualifications and skills to serve as a director on our Board.

Joshua Ruch has served as a member of our Board since July 2021, and previously served as the Chairman of our Board from July 2021 to January 2022 and as a member of Legacy Sema4's board of directors from November 2017 to July 2021. Mr. Ruch is also a managing partner and co-founder of Rho Capital Partners, an investment and venture capital management company focused on innovative technology, and has held such positions since the founding of Rho Capital Partners in 1981. Prior to co-founding Rho Capital Partners and Rho Ventures in 1981, Mr. Ruch worked as an investment banker at Salomon Brothers in New York, a multinational investment bank. In addition to Sema4, Mr. Ruch is also a trustee of the Mount Sinai Health System, Carnegie Hall and the National Humanities Center, and is a member of the Board of Governors of the Technion – Israel Institute of Technology and the Steering Committee of the Jacobs Institute. Joshua received an M.B.A. from the Harvard Business School and a B.S. in electrical engineering from the Technion – Israel Institute of Technology in Haifa, Israel. Mr. Ruch's broad experience as an investor and serving on the boards of emerging technology companies, including health care and biotechnology companies, qualifies him to serve on our Board.

Rachel Sherman, M.D., M.P.H., F.A.C.P., has served as a member of our Board since July 2021, previously served as a member of Legacy Sema4's board of directors from March 2020 to July 2021. Dr. Sherman is currently the President of Rachel Sherman Partners LLC, a drug development, regulatory, and policy consulting firm she founded in 2019, and a clinical lecturer at Harvard Pilgrim Health Care Institute. Dr. Sherman also currently serves as a member of the Board of Directors for Aptinyx Inc., a biopharmaceutical company. From May 2017 to January 2019, Dr. Sherman served as Principal Deputy Commissioner at the U.S. Food and Drug Administration (FDA), where she spent nearly 30 years in medical product development and regulation. Dr. Sherman also served in additional roles at the FDA including as deputy commissioner for Medical Products and Tobacco in the Office of the Commissioner and director of the Office of Medical Policy in the Center for Drug Evaluation and Research. Dr. Sherman earned an M.D. from Mount Sinai School of Medicine, an M.P.H from The School of Hygiene and Public Health at Johns Hopkins University and an A.B. in mathematics from Washington University (St. Louis). Dr. Sherman's medical and regulatory experience across a broad range of subject matters, including biosimilars, expedited drug development, prescription drug promotion, and active post-market surveillance provides her with the qualifications and skills to serve on our Board.

There are no familial relationships among our executive officers or directors.

Corporate Governance

Board of Directors

Our Board oversees our business affairs and works with our CEO and other senior management to determine our strategy and mission. In fulfilling its responsibilities, our Board is involved in strategic and operational planning, financial reporting, governance, compliance and risk oversight.

Director Independence

The rules of Nasdaq require that a majority of the Company's Board be independent. An "independent director" is defined generally as a person other than an executive officer or employee the Company or any other individual having a relationship which, in the opinion of the issuer's board of directors, would interfere with the exercise of independent judgement in carrying out the responsibilities of a director. Our Board has determined that each individual currently serving on our board, other than Dr. Schadt, Ms. Stueland and Mr. Ryan, qualifies as an independent director under Nasdaq listing standards.

Classified Board of Directors

In accordance with the terms of our Certificate of Incorporation, the Board consists of 12 members and is divided into three classes of directors, which serve staggered three-year terms. At each annual meeting of stockholders, a class of directors will be elected for a three-year term to succeed the same class whose term is then expiring. As a result, only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. The Board is divided among the three classes as follows:

- the Class I directors are Eli D. Casdin, Joshua Ruch and Michael Pellini, and their terms will expire at annual meeting of stockholders to be held in 2025;
- the Class II directors are Rachel Sherman, Eric Schadt and Dennis Charney, and their terms will expire at the annual meeting of stockholders to be held in 2023; and
- the Class III directors are Emily Leproust, Jason Ryan, Keith Meister, Katherine Stueland and Richard C. Pfenniger, Jr., and their terms will expire at the annual meeting of stockholders to be held in 2024.

Each director's term continues until the election and qualification of his or her successor, or his or her earlier death, resignation, or removal. The Certificate of Incorporation and Bylaws authorize only the Board to fill vacancies on the Board. Any increase or decrease in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the directors. This classification of our board of directors may have the effect of delaying or preventing changes in control of our Company. See the section titled "*Description of Capital Stock — Certain Anti-Takeover Provisions of Delaware Law and Our Certificate of Incorporation and Bylaws*."

Committees of the Board of Directors

Our Board has the authority to appoint standing and special committees to perform certain management and administration functions. Our Board has established a standing audit committee, a standing compensation committee, and a standing nominating and corporate governance committee. The composition and responsibilities of each committee are described below. Members serve on these committees until their resignation or until otherwise determined by the Board. The charters for each of these committees are available on our website at *www.Sema4.com*. Information contained on or accessible through our website is not a part of this prospectus, and the inclusion of such website address in this prospectus is an inactive textual reference only.

Audit Committee

Our audit committee is comprised of Keith Meister, Dennis Charney and Emily Leproust, with Mr. Meister as the chairman of our audit committee. The Board has determined that the composition of our audit committee meets the requirements for independence under the current Nasdaq and SEC rules and regulations, and that each member of the audit committee is financially literate. In addition, the Board has determined that Mr. Meister is an "audit committee financial expert" as defined in Item 407(d)(5)(ii) of Regulation S-K promulgated under the Securities Act. This designation does not impose on him or her any duties, obligations or liabilities that are greater than are

generally imposed on members of our audit committee and our Board. Our audit committee is directly responsible for, among other things:

- reviewing and discussing with management and the independent auditors our quarterly and annual financial results and earnings releases, our annual audited and quarterly unaudited financial statements and annual and quarterly reports on Form 10-K and 10-Q and recommend to the Board whether the annual financial statements should be included in our Annual Report on Form 10-K;
- selecting and hiring the independent registered public accounting firm;
- monitoring the qualifications, independence and performance of our independent auditors;
- the preparation of the audit committee report to be included in the proxy statement for our annual meeting;
- our compliance with legal and regulatory requirements;
- overseeing our accounting and financial reporting processes, including our financial statement audits and the integrity of our financial statements;
- reviewing and approving related-person transactions; and
- overseeing our financial risks, enterprise exposures, cybersecurity risks and other risks as it deems necessary or appropriate.

Compensation Committee

Our compensation committee is comprised of Joshua Ruch, Rachel Sherman and Eli Casdin, with Mr. Ruch as the chairman of our compensation committee. The Board has determined that each member of our compensation committee is a non-employee director, as defined by Rule 16b-3 promulgated under the Exchange Act, and meets the requirements for independence under the current Nasdaq listing standards and SEC rules and regulations. Our compensation committee is responsible for, among other things:

- evaluating, recommending, approving and reviewing executive officer compensation arrangements, plans, policies and programs;
- evaluating and recommending non-employee director compensation arrangements for determination by our Board;
- administering our cash-based and equity-based compensation plans; and
- overseeing our compliance with regulatory requirements associated with the compensation of directors, officers and employees.

The compensation committee may retain compensation advisors and other compensation consultants.

Role of Compensation Consultant

The compensation committee has the authority to retain the services and obtain the advice of external advisors, including compensation consultants, legal counsel and other advisors to assist in the evaluation of executive officer compensation. The compensation committee has engaged Radford Data & Analytics of Aon, our independent compensation consultant (“Radford”) to conduct an executive compensation market analysis and review of our short-term cash and long-term equity incentive practices to help ensure they align with market practices. Radford reviewed and advised on all principal aspects of our executive compensation program, including:

- Assisting in developing a peer group of publicly traded companies to be used to help assess the competitiveness of executive compensation;
- Assisting in ensuring a competitive compensation framework;

- Meeting regularly with the compensation committee to review all elements of executive compensation, including the competitiveness of our executive compensation program;
- Assisting in the competitive assessment of the short-term cash and long-term equity incentive plans designs; and
- Assisting in the risk assessment of our compensation program.

Outside of its services to the compensation committee, Radford provides no other services to us. The compensation committee evaluated the independence of Radford and determined that it is independent. The compensation committee also determined that Radford's work for the Company in 2021 did not raise any conflicts of interest.

Role of Compensation Committee and Executive Officers in Compensation Decisions

Our compensation committee works in close collaboration with the full Board on executive compensation matters. Following the adoption of our compensation committee charter, our compensation committee has adopted a practice of informing and consulting with the full Board concerning the establishment of performance goals and objectives for our Chief Executive Officer, evaluating our Chief Executive Officer's performance in light of the goals and objectives that were set, and determining the Chief Executive Officer's compensation based on that evaluation. Our Chief Executive Officer serves on our Board but may not be present during any determinations and deliberations about her compensation. For fiscal year 2021, our former Chief Executive Officer, Eric Schadt, prepared an analysis for the compensation committee recommending each element of compensation to be paid to all other executive officers. The compensation committee considered his recommendations, along with an analysis from Radford, in approving the compensation of our other executive officers.

Nominating and Corporate Governance Committee

Our nominating and governance committee is comprised of Joshua Ruch, Rachel Sherman and Eli Casdin with Dr. Sherman as the chairwoman of our nominating and governance committee. The Board has determined that each member of our nominating and governance committee meets the requirements for independence under the current Nasdaq listing standards. Our nominating and governance committee is responsible for, among other things:

- identifying, considering and recommending candidates for membership on our Board;
- overseeing the process of evaluating the performance of our Board; and
- advising our Board on other corporate governance matters.

Stock Ownership Guidelines

With the exception of a 9-month lockup established in the employment agreements entered into in June and July 2021 with Eric Schadt, Isaac Ro, Daniel Clark, James Coffin, Anthony Prentice, Kareem Saad and Karen White in connection with the closing of our 2021 SPAC merger transaction, we have not established any stock ownership requirements for our executives.

Board and Committee Meetings and Attendance

The Board and its committees meet throughout the year on a pre-determined schedule and also hold special meetings and act by written consent from time to time.

During 2021, the Board met six times (including telephonic meetings) and took action by unanimous written consent four times. During 2021, our audit committee met three times and took action by unanimous written consent one time, our compensation committee met three times and took action by unanimous written consent two times, and our nominating and governance committee did not meet. In addition to the official meetings, the Board also had a number of informational meetings throughout the year to update the Board on various strategic initiatives, including

in connection with the Acquisition. Each director attended at least 75% of the meetings held by the Board and by each committee on which he or she served while he or she was a director during the year, except for Nat Turner.

We acknowledge the value of having directors with significant experience in other businesses and activities. Effective service requires substantial commitment, but we recognize that the demands of other business activities vary substantially; therefore, we do not consider it necessary to impose specific limits on such activities so long as directors are sufficiently attentive and available to fulfill their duties and so long as directors comply at all times with our conflict of interests policies.

Director Attendance at Annual Meetings

Although we do not have a formal policy regarding attendance by members of the Board at each annual meeting of stockholders, we encourage all of our directors to attend in person, or virtually, depending on the meeting format. In fiscal year 2021, all of the directors serving at the time of last year's special meeting, which was held as a special meeting in lieu of our annual meeting, attended that meeting.

Code of Business Conduct and Ethics

We have adopted a Code of Business Conduct and Ethics that applies to all of our employees, officers and directors, including those officers responsible for financial reporting. The Code of Business Conduct and Ethics is available on our website at *www.Sema4.com.* Information contained on or accessible through such website is not a part of this prospectus, and the inclusion of the website address in this prospectus is an inactive textual reference only. We intend to disclose any amendments to the Code of Business Conduct and Ethics, or any waivers of its requirements, on our website to the extent required by the applicable rules and exchange requirements.

Corporate Governance Guidelines

Our Board has adopted Corporate Governance Guidelines that set forth expectations for directors, director independence standards, board committee structure and functions, stock ownership guidelines, and other policies for the governance of the Company. Under our Corporate Governance Guidelines, at all times, a majority of our directors will be independent, which means, generally, that they will not have any connections to us that could affect their ability to provide impartial oversight. Specifically, these directors will meet the independence requirements of the applicable rules, regulations and listing standards of the stock exchange on which our securities are listed for trading. Our Corporate Governance Guidelines are available without charge on the investor relations section of our website at *www.Sema4.com*. Information contained on or accessible through such website is not a part of this prospectus, and the inclusion of the website address in this prospectus is an inactive textual reference only.

EXECUTIVE COMPENSATION

Executive Compensation Overview

Objectives of our Executive Compensation Program

The main objectives of our executive compensation program are to create a competitive total rewards package to attract, retain and incent qualified executive officers who will lead us to long-term success and enhance stockholder value based on the balanced attainment of short-term performance objectives and long-term strategic goals. Each element of our compensation program supports these objectives.

Compensation of our Named Executive Officers

The following tables and accompanying narrative disclosure set forth information about the compensation earned by our named executive officers for the year ended December 31, 2021, who were:

- Eric Schadt, Ph.D., our President and Chief Research and Development Officer, and former Chief Executive Officer for the year ended December 31, 2021,
- Isaac Ro, our Chief Financial Officer, and
- James Coffin, Ph.D., our former President and Chief Operating Officer.

The named executive officers' compensation primarily consists of (1) base salary, (2) annual discretionary cash bonus and (3) equity incentive awards. Our named executive officers, during their employment with us, are also eligible to participate in the same retirement and health and welfare benefit plans as its other full-time employees.

2021 Summary Compensation Table

The following table presents summary information regarding the total compensation for services rendered in all capacities that was awarded to and earned by our named executive officers during the year ended December 31, 2021.

Name and Principal Position	Year	Salary ($)	Bonus ($)[1]	Stock Awards ($)[2]	Option Awards ($)[2]	All Other Compensation ($)[3]	Total ($)
Eric Schadt, Ph.D. *President, Chief Research and Development Officer, Former Chief Executive Officer, and Director*	2021	650,000	513,000	10,699,239	3,867,064	41,533	15,770,836
	2020	643,846	540,000	—	1,770,474	13,756	2,968,076
Isaac Ro *Chief Financial Officer*	2021	353,846	139,333	7,897,167	2,633,103	16,615	11,040,064
James Coffin, Ph.D. *Former President and Chief Operating Officer*[4]	2021	530,397	180,370	3,155,535	1,104,874	17,400	4,988,576
	2020	524,615	363,000	623,189	—	11,169	1,521,973

(1) The amounts reported reflect the annual performance-based cash bonus amounts awarded to our named executive officers for their service in 2021. For additional information regarding the bonus compensation, see "—2021 Bonuses."

(2) Amounts represent the grant date fair value of the restricted stock units and stock options awarded to the named executive officer during 2021 in accordance with FASB Accounting Standards Codification Topic 718. The assumptions used in determining the grant date fair value of the restricted stock units and stock options are set forth in Note 10 of the notes to our audited consolidated financial statements included in this prospectus. In determining the total value of the equity awards, we have considered all grants issued during the year as earned by the respective executive officers.

(3) The amounts reported in this column represent our matching contributions made on behalf of our named executive officers under our 401(k) plan and other personal benefits including reimbursement for travel costs in the amount of $24,133.

(4) Dr. Coffin left the Company in February 2022. Amounts reported include payments in respect of his 2021 bonus pursuant to our separation agreement with Dr. Coffin.

Narrative Disclosure to the Summary Compensation Table

2021 Bonuses

Under their employment agreements, Dr. Eric Schadt and Mr. Ro are entitled to receive annual bonuses based on the achievement of certain corporate and individual performance objectives. Prior to his leaving the Company, Dr. Coffin was also entitled to receive annual bonuses based on the achievement of corporate performance objectives. For the 2021 bonuses, the target annual bonuses for Dr. Schadt and Mr. Ro were equal to 100% and 50 %, respectively, of their respective annual base salaries. In February 2022, based on the achievement of corporate and individual performance objectives, the Compensation Committee determined to award bonuses for 2021 to Dr. Schadt, and to Mr. Ro on a pro rata basis based on his hire date, as set forth in the table above. Further, pursuant to a separation agreement we entered into with Dr. Coffin in January 2022, we agreed to pay Dr. Coffin a 2021 bonus in the amount reflected in the table above.

2021 Equity Awards

Our company offers stock options as well as service-based RSUs to our named executive officers as the long-term incentive component of our compensation program. Stock options allow employees to purchase shares of our Class A common stock at a price per share at least equal to the fair market value of our Class A common stock on the date of grant and may or may not be intended to qualify as “incentive stock options” for U.S. federal income tax purposes. All of our named executive officers received RSU awards in recognition of their service to us and to further incentivize continued performance. Generally, our equity-based awards vest over four years, subject to the employee’s continued employment with us on each vesting date. In connection with the Prior Merger Agreement and following the closing of the Business Combination, we also granted RSUs in the form of “Earnout RSUs” to our named executive officers that vest subject to certain market-based and service-based vesting conditions. In December 2021, we also issued stock bonuses to our employees who were hired on or before June 30, 2021, including our named executive officers, in connection with the termination of our sabbatical leave program. The stock bonuses were fully vested as of the date of issuance.

Outstanding Equity Awards at 2021 Fiscal Year-End

The following table sets forth information concerning outstanding equity awards held by each of our named executive officers as of December 31, 2021.

		Option Awards[1]				Stock Awards[1]	
Name	Grant Date	Number of Securities Underlying Unexercised Options Exercisable (#)	Number of Securities Underlying Unexercised Options Unexercisable (#)	Option Exercise Price ($)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested ($)[*]
Eric Schadt	6/1/2017[2]	4,829,521	—	$0.1529	5/31/2027	—	—
	10/17/2019[3]	851,357	510,815	$0.7659	10/16/2029	—	—
	2/18/2020[4]	1,300,203	1,011,285	$0.7659	2/17/2030	—	—
	10/1/2021[5]	52,541	788,125	$7.62	9/30/2031	—	—
	10/1/2021[5]					1,182,187	$ 5,272,552
	12/9/2021[6]	—	—	—	—	223,830	$ 309,334
	12/9/2021[7]	—	—	—	—	35,054	$ 48,444
	12/9/2021[8]	—	—	—	—	197,635	$ 273,133
	12/9/2021[8]	—	—	—	—	83,818	$ 115,836
	12/9/2021[9]	—	—	—	—	201,720	$ 278,778
Isaac Ro	10/1/2021[10]	108,507	470,197	$7.62	9/30/2031	—	—
	10/1/2021[10]	—	—	—	—	812,500	$ 3,623,750
	12/9/2021[11]	—	—	—	—	197,848	$ 273,428
James Coffin	8/31/2017[12]	2,167,093	—	$0.1529	8/30/2027	—	—
	2/18/2020[4]	457,659	355,961	$0.7659	2/17/2030	—	—
	10/1/2021[5]	15,011	225,179	$7.62	9/30/2031	—	—
	10/1/2021[5]	—	—	—	—	337,767	$ 1,506,442
	12/9/2021[6]	—	—	—	—	189,119	$ 261,363
	12/9/2021[13]	—	—	—	—	29,056	$ 40,155
	12/9/2021[14]	—	—	—	—	41,946	$ 57,968

(*) The closing market price of our Class A common stock on December 31, 2021 was $4.46 per share.

(1) The outstanding stock options were granted under our 2021 Equity Incentive Plan and Legacy Sema4's 2017 Equity Incentive Plan, as applicable. The outstanding RSUs were granted under our 2021 Equity Incentive Plan and pursuant to the Prior Merger Agreement, as applicable.

(2) The shares underlying the stock option are fully vested.

(3) The stock option vests at in quarterly installments over a four-year period. 100% of the shares underlying the stock option will vest (a) in the event that the service provider's option is not assumed or replaced by the buyer in connection with a change of control transaction or (b) upon termination of the service provider's employment by us without cause or by the service provider for good reason in connection with a change in control transaction.

(4) The stock option vests in quarterly installments over a four-year period.. 100% of the shares underlying the stock option will vest (a) in the event that the service provider's option is not assumed or replaced by the buyer in connection with a change of control transaction or (b) upon termination of the service provider's employment by us without cause or by the service provider for good reason in connection with a change in control transaction.

(5) The stock options and RSU vest in quarterly installments over a four-year period. 100% of the shares underlying the stock options and RSUs will vest (a) in the event that the service provider's option is not assumed or replaced by the buyer in connection with a change of control transaction or (b) upon termination of the service provider's employment by us without cause or by the service provider for good reason in connection with a change in control transaction.

(6) The RSUs were granted pursuant to the Prior Merger Agreement. The vesting of the RSUs is conditioned on the satisfaction of both a service requirement and a market-based requirement. The service requirement is deemed satisfied as of the grant date.

(7) The RSUs were granted pursuant to the Prior Merger Agreement. The vesting of the RSUs is conditioned on the satisfaction of both a service requirement and a market-based requirement. The service requirement is deemed satisfied as of the grant date with respect to 12,254 of the RSUs, and will be satisfied with respect to the remainder of the RSUs over four vesting periods, subject to the officer's continued service to us on each service-based vesting date.

(8) The RSUs were granted pursuant to the Prior Merger Agreement. The vesting of the RSUs is conditioned on the satisfaction of both a service requirement and a market-based requirement. The service requirement is deemed satisfied as of the grant date with respect to 54,532

of the RSUs, and will be satisfied with respect to the remainder of the RSUs over five semi-annual periods, subject to the officer's continued service to us on each service-based vesting date.

(9) The RSUs were granted pursuant to the Prior Merger Agreement. The vesting of the RSUs is conditioned on the satisfaction of both a service requirement and a market-based requirement. The service requirement is deemed satisfied as of the grant date with respect to 100,737 of the RSUs, and will be satisfied with respect to the remainder of the RSUs over eight quarterly periods, subject to the officer's continued service to us on each service-based vesting date.

(10) 1/8th of the total shares underlying the stock options and RSUs vested on October 25, 2021, 1/16th of the total shares vested on November 8, 2021, and the RSUs thereafter vests as to 1/16th of the total shares underlying the award in quarterly installments until fully vested on February 8, 2025, subject to the officer's continued service to us on each vesting date. 100% of the shares underlying the stock options and RSUs will vest (a) in the event that the service provider's option is not assumed or replaced by the buyer in connection with a change of control transaction or (b) upon termination of the service provider's employment by us without cause or by the service provider for good reason in connection with a change in control transaction.

(11) The RSUs were granted pursuant to the Prior Merger Agreement. The vesting of the RSUs is conditioned on the satisfaction of both a service requirement and a market-based requirement. The service requirement is deemed satisfied as of the grant date with respect to 24,701 of the RSUs, and will be satisfied with respect to the remainder of the RSUs over 14 quarterly periods, subject to the officer's continued service to us on each service-based vesting date.

(12) The shares underlying the stock option are fully vested.

(13) The RSUs were granted pursuant to the Prior Merger Agreement. The vesting of the RSUs is conditioned on the satisfaction of both a service requirement and a market-based requirement. The service requirement is deemed satisfied as of the grant date with respect to 6,263 of the RSUs, and will be satisfied with respect to the remainder of the RSUs over six quarterly periods, subject to the officer's continued service to us on each service-based vesting date. Dr. Coffin left the Company in February 2022.

(14) The RSUs were granted pursuant to the Prior Merger Agreement. The vesting of the RSUs is conditioned on the satisfaction of both a service requirement and a market-based requirement. The service requirement is deemed satisfied as of the grant date with respect to 29,196 of the RSUs, and will be satisfied with respect to the remainder of the RSUs over four vesting periods, subject to the officer's continued service to us on each service-based vesting date. Dr. Coffin left the Company in February 2022.

Employment Agreements with Our Current Named Executive Officers

Each of our current named executive officers has entered into an employment agreement with us that provides for at-will employment and includes each named executive officer's base salary, a discretionary incentive bonus opportunity and standard employee benefit plan participation. The employment agreements provide for an annual base salary of $675,000 and a target annual bonus of 100% of annual base salary, in the case of Dr. Schadt, and an annual base salary of $400,000 and a target annual bonus of 50% of annual base salary, in the case of Mr. Ro. The employment agreements also provide for the potential payments and benefits upon a termination of employment or in connection with a change in control as described below in "*—Potential Payments upon Termination or Change in Control*." In addition, Dr's Schadt's and Mr. Ro's employment agreements provided for each to receive certain equity-based incentive awards following the closing of the Business Combination, which awards were granted under the 2021 Equity Incentive Plan (the "2021 EIP") and are subject to service-based vesting conditions. For more information, see "*—Outstanding Equity Awards at 2021 Fiscal Year-End*."

In addition, pursuant to their employment agreements, each of Dr. Schadt and Mr. Ro agreed that, during the nine-month period following the closing of our Business Combination, he will not: (i) sell, offer to sell, contract or agree to sell, hypothecate, pledge, grant any option to purchase or otherwise dispose of or agree to dispose of, directly or indirectly, or establish or increase a put equivalent position or liquidate or decrease a call equivalent position within the meaning of Section 16 of the Exchange Act, with respect to any shares of our Class A common stock, (ii) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of any of such shares, in cash or otherwise, or (iii) publicly announce any intention to effect any transaction specified in clause (i) or (ii).

Potential Payments upon Termination or Change in Control

Pursuant to his employment agreement, if Dr. Schadt is terminated without "cause" or resigns for "good reason" (as such terms are defined in his employment agreement) other than in connection with a change in control, he will be entitled to receive 24 months of base salary continuation and continued coverage under our group health benefit plans, subject to his execution of a release of claims. If instead such termination occurs within the period commencing three months prior to and ending 12 months following a change in control, he will be entitled to receive 24 months of base salary continuation, a lump sum payment equal to two times his target annual bonus, 24 months of continued coverage under our group health benefit plans, and accelerated vesting of his outstanding equity-based compensation awards, subject to his execution of a release of claims.

Pursuant to his employment agreement, if Mr. Ro is terminated without "cause" or resigns for "good reason" (as such terms are defined in his employment agreement) other than in connection with a change in control, he will be entitled to receive 9 months of base salary continuation and 12 months of continued coverage under our group health benefit plans, subject to his execution of a release of claims. If instead such termination occurs within the 12-month period following a change in control, he will be entitled to receive 12 months of base salary continuation, a lump sum payment equal to one times his target annual bonus, 12 months of continued coverage under our group health benefit plans, and accelerated vesting of his outstanding equity-based compensation awards, subject to his execution of a release of claims.

As described above in "*—Outstanding Equity Awards at 2021 Fiscal Year-End*", a portion of the stock options held by Dr. Schadt would vest upon a change in control transaction.

Separation Agreement with Our Former Named Executive Officer

In connection with Dr. Coffin's departure from our company in February 2022, we and Dr. Coffin entered into a separation agreement (the "Separation Agreement"), pursuant to which Dr. Coffin received the following severance benefits in exchange for his execution of release of claims:

- a severance payment equal to 12 months of Dr. Coffin's annual base salary in the amount of $550,000;
- a discretionary 2021 annual bonus payment in the amount of $180,370;
- 12 months of reimbursement of COBRA continuation benefits;
- accelerated vesting of 25,425 stock options that were otherwise scheduled to vest on February 2, 2022 in the amount of $58,233, which is calculated based on the fair value estimated as of the effective date of his separation agreement; and
- an extended period to exercise certain of Dr. Coffin's vested stock options through May 30, 2022.

Equity Compensation Plans and Other Benefit Plans

2021 Equity Incentive Plan

Our 2021 Equity Incentive Plan or the 2021 EIP was adopted by our Board and approved by our stockholders in July 2021. The following summarizes the material terms of the 2021 EIP. This summary is qualified in its entirety to the full text of the 2021 EIP.

Shares reserved. We initially reserved 32,734,983 shares of Class A common stock for issuance pursuant to awards granted under the 2021 EIP, which includes shares of our Class A common stock previously reserved but unissued under Legacy Sema4's 2017 Equity Incentive Plan that became available for issuance under the 2021 Plan. The number of shares reserved for issuance under the 2021 EIP will increase automatically on January 1 of each of 2022 through 2031 by the number of shares equal to 5% of the aggregate number of outstanding shares of all classes of our Class A common stock as of the immediately preceding December 31, or a lesser number as may be determined by our Board. On January 25, 2022, an additional 12,128,941 shares became available for future issuance under the 2021 EIP pursuant to the plan's evergreen provision.

In addition, the shares set forth below will again be available for issuance pursuant to awards granted under our 2021 EIP:

- shares subject to options or SARs granted under our 2021 EIP that cease to be subject to the option or SAR for any reason other than exercise of the option or SAR;
- shares subject to awards granted under our 2021 EIP that are subsequently forfeited or repurchased by us at the original issue price;
- shares subject to awards granted under our 2021 EIP that otherwise terminate without such shares being issued;

- shares subject to awards granted under our 2021 EIP that are surrendered, cancelled, or exchanged for cash or a different award (or combination thereof);
- shares issuable upon the exercise of options or subject to other awards granted under the 2021 EIP that cease to be subject to such options or other awards, by forfeiture or otherwise, after the effective date of the 2021 EIP;
- shares subject to awards granted under the 2021 EIP that are forfeited or repurchased by us at the original price after the effective date of the 2021 EIP; and
- shares subject to awards under the 2021 EIP that are used to pay the exercise price of an option or withheld to satisfy the tax withholding obligations related to any award.

Administration. Our 2021 EIP will be administered by our compensation committee, or by our Board acting in place of our compensation committee. Subject to the terms and conditions of the 2021 EIP, the administrator will have the authority, among other things, to select the persons to whom awards may be granted, construe and interpret our 2021 EIP as well as to determine the terms of such awards and prescribe, amend and rescind the rules and regulations relating to the plan or any award granted thereunder. The 2021 EIP provides that the administrator may delegate its authority, including the authority to grant awards, to one or more executive officers to the extent permitted by applicable law, provided that awards granted to non-employee directors may only be determined by our Board.

Options. The 2021 EIP provides for the grant of both incentive stock options intended to qualify under Section 422 of the Code, and nonqualified stock options to purchase shares of our Class A common stock at a stated exercise price. Incentive stock options may only be granted to employees, including officers and directors who are also employees. The exercise price of stock options granted under the 2021 EIP must be at least equal to the fair market value of our Class A common stock on the date of grant. Incentive stock options granted to an individual who holds, directly or by attribution, more than ten percent of the total combined voting power of all classes of our capital stock must have an exercise price of at least 110% the fair market value of our Class A common stock on the date of grant.

Options may vest based on service or achievement of performance conditions, as determined by the administrator. The administrator may provide for options to be exercised only as they vest or to be immediately exercisable, with any shares issued on exercise being subject to our right of repurchase that lapses as the shares vest. In the event of a participant's termination of service, an option is generally exercisable, to the extent vested, for a period of three months in the case of termination without cause (except due to a participant's death or disability), for a period of 12 months in the case of termination due to the participant's death or disability, or such longer or shorter period as the administrator may provide, and for a period of 24 months in the case of termination due to the participant's retirement (consistent with our policies regarding retirement). Stock options generally terminate upon a participant's termination of employment for cause. The maximum term of options granted under our 2021 EIP is ten years from the date of grant, except that the maximum permitted term of incentive stock options granted to an individual who holds, directly or by attribution, more than ten percent of the total combined voting power of all classes of our capital stock is five years from the date of grant.

Restricted stock awards ("RSA"*).* An RSA is an offer by us to grant or sell shares of our Class A common stock subject to restrictions, which may lapse based on the satisfaction of service or achievement of performance conditions. The price, if any, of an RSA will be determined by the administrator. Unless otherwise determined by the administrator, vesting will cease on the date the participant no longer provides services to us and unvested shares may be forfeited to or repurchased by us.

Stock appreciation rights ("SAR"*).* A SAR provides for a payment, in cash or shares of our Class A common stock (up to a specified maximum number of shares, if determined by the administrator), to the participant based upon the difference between the fair market value of our Class A common stock on the date of exercise and a predetermined exercise price, multiplied by the number of shares. The exercise price of a SAR must be at least the fair market value of a share of our Class A common stock on the date of grant. SARs may vest based on service or achievement of performance conditions. No SAR may have a term that is longer than ten years from the date of grant.

Restricted stock units ("RSU*").* An RSU represents the right to receive the value of shares of our Class A common stock at a specified date in the future and may be subject to vesting based on service or achievement of performance conditions. RSUs may be settled in cash, shares of our Class A common stock or a combination of both as soon as practicable following vesting or on a later date subject to the terms of the 2021 EIP. No RSU may have a term that is longer than ten years from the date of grant.

Performance awards. Performance awards granted pursuant to the 2021 EIP may be in the form of a cash bonus, or an award of performance shares or performance units denominated in shares of our Class A common stock that may be settled in cash, property or by issuance of those shares, subject to the satisfaction or achievement of specified performance conditions.

Stock bonus awards. A stock bonus award provides for payment in the form of cash, shares of our Class A common stock or a combination thereof, based on the fair market value of shares subject to such award as determined by the administrator. The awards may be granted as consideration for services already rendered, or at the discretion of the administrator, may be subject to vesting restrictions based on continued service or performance conditions.

Dividend equivalents rights. Our Board or the compensation committee thereof may permit participants holding RSUs to receive dividend equivalent payments if and when dividends are paid to stockholders. In the discretion of our board or the compensation committee thereof, such dividend equivalent payments may be paid in cash or shares of our Class A common stock and may either be paid at the same time as dividend payments are made to stockholders or delayed until shares are issued pursuant to the RSU grants and may be subject to the same vesting or performance requirements as the RSUs.

Change of control. Our 2021 EIP provides that, in the event of a corporate transaction that constitutes a change of control of our company under the terms of the plan, outstanding awards will be subject to the agreement evidencing the change of control, which need not treat all outstanding awards in an identical manner, and may include one or more of the following: (i) the continuation of the outstanding awards; (ii) the assumption of the outstanding awards by the surviving corporation or its parent; (iii) the substitution by the surviving corporation or its parent of new options or equity awards for the outstanding awards; (iv) the full or partial acceleration of exercisability or vesting or lapse of the company's right to repurchase or other terms of forfeiture and accelerated expiration of the award; or (v) the settlement of the full value of the outstanding awards (whether or not then vested or exercisable) in cash, cash equivalents, or securities of the successor entity with a fair market value equal to the required amount, as determined in accordance with the 2021 EIP, which payments may be deferred until the date or dates the award would have become exercisable or vested. Notwithstanding the foregoing, upon a change of control the vesting of all awards granted to our non-employee directors will accelerate and such awards will become exercisable, to the extent applicable, and vested in full immediately prior to the consummation of the change of control.

Adjustment. In the event of a change in the number of outstanding shares of our Class A common stock without consideration by reason of a stock dividend, extraordinary dividend or distribution, spin-off, recapitalization, stock split, reverse stock split, subdivision, combination, consolidation reclassification, spin-off or similar change in our capital structure, proportional adjustments will be made to (i) the number and class of shares reserved for issuance under our 2021 EIP; (ii) the exercise prices, number and class of shares subject to outstanding options or SARs; (iii) the number and class of shares subject to other outstanding awards; and (iv) the maximum number and class of shares that may be issued as incentive stock options, subject to any required action by the board or our stockholders and compliance with applicable laws.

Exchange, repricing and buyout of awards. The administrator may, without prior stockholder approval, (i) reduce the exercise price of outstanding options or SARs without the consent of any participant and (ii) pay cash or issue new awards in exchange for the surrender and cancellation of any, or all, outstanding awards, subject to the consent of any affected participant to the extent required by the terms of the 2021 EIP.

Director compensation limits. No non-employee director may receive awards under our 2021 EIP with a grant date value that when combined with cash compensation received for his or her service as a director, exceed

$750,000 in a calendar year, increased to $1,000,000 in the calendar year of his or her initial services as a non-employee director.

Clawback; transferability. All awards will be subject to clawback or recoupment pursuant to any compensation clawback or recoupment policy adopted by our Board or the compensation committee thereof or required by law during the term of service of the participant, to the extent set forth in such policy or applicable agreement. Except in limited circumstances, awards granted under our 2021 EIP may generally not be transferred in any manner other than by will or by the laws of descent and distribution.

Sub-plans. Subject to the terms of the 2021 EIP, the plan administrator may establish a sub-plan under the 2021 EIP and/or modify the terms of awards granted to participants outside of the United States to comply with any laws or regulations applicable to any such jurisdiction.

Amendment and termination. Our Board or compensation committee may amend our 2021 EIP at any time, subject to stockholder approval as may be required. Our 2021 EIP will terminate ten years from the date our Board adopts the plan, unless it is terminated earlier by our Board. No termination or amendment of the 2021 EIP may materially adversely affect any then-outstanding award without the consent of the affected participant, except as is necessary to comply with applicable laws or as otherwise provided by the terms of the 2021 EIP.

2017 Stock Incentive Plan

Legacy Sema4's 2017 Equity Incentive Plan (the "2017 EIP") was adopted by Legacy Sema4's board of directors and approved by its stockholders in April 2017. The 2017 EIP allowed for the grant of stock options, stock appreciation rights, restricted stock, and RSUs. As of December 31, 2021, we had 27,671,750 shares of our Class A common stock reserved for issuance pursuant to outstanding awards granted under the 2017 EIP. We terminated the 2017 EIP upon the effective date of the 2021 EIP, which was July 21, 2021. Any awards granted under the 2017 EIP that remained outstanding as of such date continue to be subject to the terms of the 2017 EIP and applicable award agreements until such awards are exercised or amended or until they terminate or expire by their terms.

2021 Employee Stock Purchase Plan

The 2021 Employee Stock Purchase Plan (the "ESPP") was adopted by our Board and approved by our stockholders in July 2021. The following summarizes the material terms of the ESPP. This summary is qualified in its entirety to the full text of the ESPP. We have not yet established an offering period under the ESPP.

Shares Reserved. We have initially reserved 4,804,011 shares of our Class A common stock equal for issuance and sale under the ESPP. The number of shares reserved for issuance and sale under our ESPP will increase automatically on January 1 of each of 2022 through 2031 by the number of shares equal to 1% of the aggregate number of outstanding shares of all classes of our Class A common stock as of the immediately preceding December 31, or a lesser number as may be determined by our compensation committee, or by our Board acting in place of our compensation committee. Subject to stock splits, recapitalizations, or similar events, no more than the number of shares of our Class A common stock equal to ten times the Initial ESPP Share Reserve may be issued over the term of the ESPP. On January 25, 2022, an additional 2,425,788 shares became available for future issuance under the ESPP pursuant to the plan's evergreen provision.

Administration. Our ESPP will be administered by our compensation committee, or by our Board acting in place of our compensation committee, subject to the terms and conditions of the ESPP. Among other things, the administrator will have the authority to determine eligibility for participation in the ESPP, designate separate offerings under the plan, and construe, interpret and apply the terms of the plan.

Eligibility. Employees eligible to participate in any offering pursuant to the ESPP generally include any employee that is employed by us or certain of our designated subsidiaries at the beginning of the offering period. However, the administrator may exclude employees who do not meet eligibility requirements that our compensation committee may choose to impose (within the limits permitted by the Code), are customarily employed for 20 hours or less per week, are customarily employed for five months or less in a calendar year or certain highly-compensated employees as determined in accordance with applicable tax laws. In addition, any employee who owns (or is deemed

to own because of attribution rules) 5% or more of the total combined voting power or value of all classes of our capital stock, or the capital stock of one of our qualifying subsidiaries, or who will own such amount because of participation in the ESPP, will not be eligible to participate in the ESPP. The administrator may impose additional restrictions on eligibility from time to time.

Offering Periods; Enrollment. Under our ESPP, eligible employees will be offered the option to purchase shares of our Class A common stock at a discount over a series of offering periods through accumulated payroll deductions over the period. The length of the offering periods under ESPP will be determined by the plan administrator and may be up to twenty-seven (27) months long. Each offering period may itself consist of one or more purchase periods. When the first offering period commences, our employees who meet the eligibility requirements for participation in that offering period will be eligible to enroll. For subsequent offering periods, new participants will be required to enroll in a timely manner. Once an employee is enrolled, participation will be automatic in subsequence offering periods. Participation in the ESPP ends automatically upon a participant's termination of employment. A participant may withdraw his or her participation from the ESPP at any time by submitting written notice to the company.

Offerings; Contributions; Limitations. The purchase price for shares purchased under the ESPP during any given purchase period will be 85% of the lesser of the fair market value of our Class A common stock on (i) the first trading day of the applicable offering period or (ii) the last trading day of the purchase period. The ESPP permits participants to purchase shares of our Class A common stock through payroll deductions of a percentage of their eligible compensation, which may not be less than one percent (1%) and may be up to a maximum of fifteen percent (15%) or such lower limit set by the plan administrator. No participant may purchase more than 2,500 shares of our Class A common stock during any one purchase period, and may not subscribe for more than $25,000 in fair market value of shares of our Class A common stock (determined as of the date the offering period commences) in any calendar year in which the offering is in effect. The administrator in its discretion, may set a lower maximum number of shares which may be purchased.

Adjustments upon recapitalization. If the number of outstanding shares of our Class A common stock is changed by stock dividend, recapitalization, stock split, reverse stock split, subdivision, combination, reclassification or similar change in our capital structure without consideration, then the administrator will proportionately adjust the number and class of common stock that is available under the ESPP, the purchase price and number of shares any participant has elected to purchase as well as the maximum number of shares which may be purchased by participants.

Corporate Transaction. If the post-combination company experiences a corporate transaction as determined under the terms of the ESPP, any offering period then in effect will be shortened and terminated on a final purchase date established by the administrator. The final purchase date will occur on or prior to the effective date of change of control transaction, and our ESPP will terminate on the closing of the change of control.

Transferability. Participants may generally not assign, transfer, pledge or otherwise dispose of payroll deductions credited to his or her account, or any rights with regard to an election to purchase shares pursuant to the ESPP other than by will or the laws of descent or distribution.

Amendment; Termination. The board or compensation committee may amend, suspend or terminate the ESPP at any time without stockholder consent, except as to the extent such amendment would increase the number of shares available for issuance under the ESPP, change the class or designation of employees eligible for participation in the plan or otherwise as required by law. If the ESPP is terminated, the administrator may elect to terminate all outstanding offering periods immediately, upon the next purchase date (which may be sooner than originally scheduled) or upon the last day of such offering period. If any offering period is terminated prior to its scheduled completion, all amounts credited to participants which have not been used to purchase shares will be returned to participants as soon as administratively practicable. Unless earlier terminated, the ESPP will terminated upon the earlier to occur of the issuance of all shares of common stock reserved for issuance under the ESPP, or the 10th anniversary of the effective date.

401(k) Plan

We sponsor a retirement savings plan established on January 1, 2018 that is intended to qualify for favorable tax treatment under Section 401(a) of the IRC, and contains a cash or deferred feature that is intended to meet the requirements of Section 401(k) of the IRC. Participants may make pre-tax and certain after-tax (Roth) salary deferral contributions to the plan from their eligible earnings up to the statutorily prescribed annual limit under the IRC. Participants who are 50 years of age or older may contribute additional amounts based on the statutory limits for catch-up contributions. Participant contributions are held in trust as required by law. No minimum benefit is provided under the plan. The plan provides for employer safe harbor matching contributions equal to 100% of an employee's salary deferrals that do not exceed 6% of the employee's compensation. An employee's interest in his or her deferrals and safe harbor matching contributions is 100% vested when contributed.

Other Benefits

Our named executive officers, while employed by us, are eligible to participate in our employee benefit plans on the same basis as our other employees, including our health and welfare plans. We generally do not provide our named executive officers with perquisites or other personal benefits. However, we do reimburse our named executive officers for their necessary and reasonable business and travel expenses incurred in connection with their services to us.

Compensation Committee Interlocks and Insider Participation

The directors who were members of our compensation committee during 2021 were Joshua Ruch, Rachel Sherman and Nat Turner. None of them at any time has been one of our officers or employees. None of our executive officers serves, or in the past has served, as a member of the Board or compensation committee of any entity that has one or more of its executive officers serving on our Board or our compensation committee.

Director Compensation

Non-Employee Director Compensation Policy

We adopted a non-employee director compensation policy that is designed to enable us to attract and retain, on a long-term basis, highly qualified non-employee directors. Our non-employee directors will receive an annual cash retainer of $40,000, payable quarterly, and a grant of stock options and RSUs with an aggregate grant-date value of $200,000, which will vest on the earlier of the first anniversary of the grant date and the next annual meeting of our stockholders. New non-employee directors will receive a grant of stock options RSUs upon joining our Board with an aggregate grant-date value of $400,000, which will vest over the three-year period following the grant date.

Members of our audit committee will receive an additional annual cash retainer of $10,000, and the chairperson of our audit committee will receive an additional cash retainer of $20,000 (in lieu of the annual retainer for membership on the audit committee). Members of our compensation committee will receive an additional annual cash retainer of $7,500, and the chairperson of our compensation committee will receive an additional cash retainer of $15,000 (in lieu of the annual retainer for membership on the compensation committee). Members of our nominating and governance committee will receive an additional annual cash retainer of $5,000, and the chairperson of our nominating and governance committee will receive an additional cash retainer of $10,000 (in lieu of the annual retainer for membership on the compensation committee).

Executive Chairman Compensation

In January 2022, our Board appointed Jason Ryan as Executive Chairman and entered into an executive chairman agreement (the "Executive Chairman Agreement") with Mr. Ryan. Prior to this appointment, Mr. Ryan served as a non-employee director of our Board. The Executive Chairman Agreement provides for an annual base salary of $540,000. In connection with the appointment, we issued to our Executive Chairman an option to purchase 429,730 shares of our Class A common stock, 247,525 service-based RSUs and 126,980 performance-based stock units, which awards will vest in full on the earlier of (a) December 31, 2022, and (b) a change in control of our company subject to Mr. Ryan's continued service as our Executive Chairman through such date and, in the case of

the performance-based RSUs, subject to the achievement of certain performance-based vesting conditions. The Executive Chairman Agreement will terminate on December 31, 2022 unless terminated earlier in accordance with its terms or extended by the mutual agreement of our Board and Mr. Ryan.

2021 Director Compensation Table

The following table sets forth the compensation earned by or paid to our non-employee directors for services provided during the year ended December 31, 2021, other than Keith Meister who joined the Board in January 2022 and Richard Pfenniger, Jr., who joined the Board in April 2022. Dr. Schadt did not receive any compensation for his service as a director during fiscal year 2021, while also serving as Chief Executive Officer. Ms. Stueland also joined the Board in April 2022 and will not receive any compensation for her service as a director while also service as Co-Chief Executive Officer. Other than as described below, none of our non-employee directors received any fees or reimbursement of any expenses (other than customary expenses in connection with the attendance of meetings of our Board) or any equity or non-equity awards in the year ended December 31, 2021. Please see the section entitled "*Executive Compensation—2021 Summary Compensation Table*" for a summary of payments made to Dr. Schadt.

Name	Fees Earned or Paid in Cash($)	Option Awards($)[1]	Restricted Stock and Other Securities ($)[1][5]	All Other Compensation ($)[2]	Total($)
Joshua Ruch	47,500	201,911	199,985	—	449,396
Dennis Charney, M.D.	—	—	—	—	—
Eli D. Casdin	20,000	101,401	99,992	—	221,393
Emily Leproust, Ph.D.	25,000	101,401	99,992	—	226,393
Jason Ryan[3]	30,000	201,911	199,985	—	431,896
Michael Pellini, M.D.	20,000	201,911	199,985	—	421,896
Nat Turner[4]	23,750	101,401	99,992	—	225,143
Rachel Sherman, M.D., M.P.H., F.A.C.P.	20,000	101,401	143,797	50,000	315,198

(1) The amounts reported in this column represent the aggregate grant date fair value of the awards granted under the 2021 EIP and pursuant to the Prior Merger Agreement, as applicable, to our directors during the year ended December 31, 2021, as computed in accordance with FASB ASC Topic 718. The assumptions used in determining the grant date fair value of the awards reported in the Option Awards and Restricted Stock and Other Securities columns are set forth in Note 10 to our financial statements included elsewhere in this prospectus. Note that the amounts reported in this column reflect the aggregate accounting cost for these awards granted during the year, and do not necessarily correspond to the actual economic value that may be received by the director from the awards.
(2) The amounts reported in this column represents payments under director legacy and other charitable award programs.
(3) Mr. Ryan served as a non-employee director until January 2022.
(4) Mr. Turner resigned as a director in April 2022.
(5) The following table sets forth information regarding the aggregate number of shares of our Class A common stock underlying outstanding stock options held by our non-employee directors as of December 31, 2021 and the aggregate number of unvested shares of our Class A common stock underlying outstanding RSU awards held by our non-employee directors as of December 31, 2021:

Name	Shares Underlying Unexercised Stock Options	Unvested Shares of Restricted Stock Units
Joshua Ruch	44,572	25,672
Dennis Charney, M.D.	—	—
Eli D. Casdin	22,286	12,836
Emily Leproust, Ph.D.	22,286	12,836
Jason Ryan	44,572	25,672
Michael Pellini, M.D.	44,572	25,672
Nat Turner	22,286	12,836
Rachel Sherman, M.D., M.P.H., F.A.C.P.	385,509	44533[1]

(1) Includes 31,697 Earnout RSUs granted in connection with the Prior Merger Agreement.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

Related Party Transactions

The following is a description of transactions since January 1, 2020 and currently proposed transactions in which:

a. we have been or is to be a participant;

b. the amount involved exceeded or will exceed the lesser $120,000 or 1% of the average of our total assets as of year-end for the last two completed fiscal years; and

c. any of our directors, executive officers or holders of more than 5% of our capital stock, or any immediate family member of, or person sharing the household with, any of these individuals, had or will have a direct or indirect material interest.

Related Party Transactions Related to the Acquisition

Acquisition Subscription Agreements

In connection with the Acquisition, the PIPE Investors executed subscription agreements to purchase an aggregate of 50,000,000 shares of our Class A common stock at $4.00 per share, for an aggregate purchase price of $200 million in the PIPE Investment. The PIPE Investment closed on April 29, 2022. The funds from the PIPE Investment were used, in part, to fund the Acquisition of GeneDx. The following table sets forth the number of shares of our Class A common stock that we issued to our directors, executive officers and 5% stockholders and their affiliates in connection with the PIPE Investment:

	Shares of Class A Common Stock	
Purchaser	**Number of Shares**	**Aggregate Gross Consideration ($)**
Entities affiliated with Blackstone[(1)]	2,500,000	10,000,000
Entities affiliated with Casdin[(2)]	11,437,500	45,750,000
Entities affiliated with Corvex[(3)]	11,437,500	45,750,000
Mount Sinai[(4)]	6,250,000	25,000,000
Entities affiliated with Deerfield[(5)]	5,000,000	20,000,000
Entities affiliated with Rho Partners[(6)]	2,125,000	8,500,000
Entities affiliated with Section32[(7)]	1,250,000	5,000,000
Total	40,000,000	160,000,000

(1) Consists of 2,434,863 shares of Class A common stock issued to BTO Sema4 Holdings L.P., 50,402 shares of Class A common stock issued to Blackstone Tactical Opportunities Fund - FD L.P. and 14,735 shares of Class A common stock issued to Blackstone Family Tactical Opportunities Investment Partnership III ESC L.P.
(2) Consists of 11,437,500 shares of Class A common stock issued to Casdin Partners Master Fund, L.P.
(3) Consists of 3,557,000 shares of Class A common stock issued to Corvex Master Fund LP, 7,320,000 shares of Class A common stock issued to Corvex Select Equity Master Fund LP, and 560,500 shares of Class A common stock issued to Corvex Dynamic Equity Select Master Fund LP.
(4) Consists of 6,250,000 shares of Class A common stock issued to Ichan School of Medicine at Mount Sinai.
(5) Consists of 3,125,000 shares of Class A common stock issued to Deerfield Private Design Fund V, L.P. and 1,875,000 shares of Class A common stock issued to Deerfield Partners, L.P.
(6) Consists of 1,632,963 shares of Class A common stock issued to Vaal Investment Partners Q9 LP, 329,665 shares of Class A common stock issued to Rugu2 LLC, and 162,372 shares of Class A common stock issued to Kariba LLC. Rho Partners is an affiliate of Joshua Ruch, a member of our Board.
(7) Consists of 1,250,000 shares of Class A common stock issued to Section 32 Fund 2, L.P. Section32 is an affiliate of Michael Pellini, a member of our Board.

Shareholder Agreements

In connection with the execution of the Merger Agreement, OPKO, a 5% stockholder of the Company following the Closing of the Acquisition, and certain individual stockholders of OPKO who hold 5% or more of OPKO's common stock (each a "Lock-Up Holder") entered into the Shareholder Agreements, whereby each agreed to certain transfer restrictions with respect to shares of Class A common stock included in the Merger Consideration or Milestone Payments that were distributed or otherwise transferred to it (such shares of Class A common stock, the "*Lock-up Shares*") that will remain in place until, (a) with respect to the Stock Consideration Shares, the date that is one year from the Closing Date (as defined in the Merger Agreement), (b) with respect to the stock portion of the first Milestone Payment, if any, the date that is one year from the date of issuance for such payment and (c) with respect to the stock portion of the second Milestone Payment, if any, the date that is six months from the date of issuance for such payment (the period described in (a), (b) and (c) is referred to as the "Lock-Up Period").

Each Lock-Up Holder has also agreed in the Shareholders Agreements that, following the Lock-Up Period and for so long as such Lock-Up Holder is the record or beneficial owner of at least 5% of the issued and outstanding Class A common stock, such Lock-Up Holder shall not, without the Company's consent, sell more than 25% of the shares of the Company's Class A common stock it received in connection with the Acquisition in any 90-day period, except as part of a marketed sale process for which one lead bookrunner has been selected by Company in its sole discretion.

Each Lock-Up Holder has also agreed to vote all of his, her or its Lock-Up Shares in whatever manner is recommended by the Board for so long as such Lock-Up Holder is the record or beneficial owner of at least 5% of the issued and outstanding Class A common stock.

The Shareholder Agreements also provide that, for a period of twelve months from the Closing, the Lock-Up Holders shall not, without the consent of the Company's Board or chief executive officer (a) acquire shares or voting securities in the Company, (b) make any solicitation of votes, or seek to advise on any vote of the Company's securities, (c) form a "group" (with the meaning of Section 13(d)(3) of the Exchange Act) with respect to any voting securities of the Company, (e) propose any merger, business combination, tender offer, or similar transaction with respect to the Company, (f) solicit or provide information to any person with respect of a business combination or tender offer involving the Company, (g) advise, assist or knowingly encourage any other person with respect to the actions described in (a)-(g) above, (h) enter into any discussions or negotiations with respect to the foregoing, (i) take any action that could reasonably be expected to require disclosure on the part of the Company with respect to any of the foregoing, or (j) disclose any intention inconsistent with the foregoing.

The Company has agreed in the Shareholder Agreements to file a registration statement in respect of the Registrable Securities (as defined therein) within 30 days following the closing of the Acquisition and granted to the Lock-Up Holders certain customary shelf, piggyback and demand registration rights.

Merger Agreement

In connection with the closing of the Acquisition, the Company (a) issued 80 million Stock Consideration Shares to OPKO (at a total value of $323.2 million based on a per share price of $4.04, which was the closing price of the Class A common stock on January 14, 2022, the date the Merger Agreement was signed) and (b) paid $150.0 million to OPKO as the Cash Consideration, each pursuant to the Merger Agreement. In addition, the Company may pay OPKO up to $150 million, in cash or Milestone Shares, in the Company's sole discretion, following the Closing, if certain revenue-based milestones are achieved for each of the fiscal years ending December 31, 2022 and December 31, 2023.

Transition Services Agreement

In connection with the closing of the Acquisition, GeneDx and OPKO entered into a Transition Services Agreement dated as of April 29, 2022 (the "Transition Services Agreement") pursuant to which OPKO has agreed to provide, at cost, certain services in support of the Acquisition of the GeneDx business through December 31, 2022, subject to certain limited exceptions, with such services being in order to facilitate the transactions contemplated by the Merger Agreement, including human resources, information technology support, and finance and accounting.

ISMMS Lock-Up Agreement

In connection with the execution of the Merger Agreement, we and Icahn School of Medicine at Mount Sinai entered into a Lock-Up Agreement whereby ISMMS agreed to certain transfer restrictions in respect of the shares of our Class A common stock issued to ISMMS pursuant to the PIPE Investment. These transfer restrictions will expire on July 12, 2022.

Sema4 Related Party Transactions

Employment Arrangements with Immediate Family Members of Our Executive Officers and Directors

Emilio Schadt, the son of Eric Schadt, our former Chief Executive Officer and a director, has been employed with us since August 2018 as a Data Science Software Engineer, where he is responsible for implementing methods to improve data reliability. During the year ended December 31, 2021, Mr. Schadt had total compensation, including base salary and bonus, of $177,543. Rick Wallsten, the brother of Eric Schadt, our former Chief Executive Officer and a director, has been employed by us since November 2017 as a clinical pharmacist, where he is responsible for certain aspects of our pharmacogenomics program. During the year ended December 31, 2021, Mr. Wallsten had total cash compensation, including base salary and bonus, of $209,563. During the year ended December 31, 2020, Mr. Wallsten had total cash compensation, including base salary and bonus, of $157,620. Carol Senn, the sister-in-law of James Coffin, our former Chief Operating Officer, has been employed with us since November 2020 as an Account Manager, where she is responsible for certain aspects of growing the business. During the year ended December 31, 2021, Ms. Senn had total compensation, including base salary, of $155,706. Kelly Peterson, the sister of James Coffin, our former Chief Operating Officer, has been employed with us since February 2019 as a Sales Specialist Oncology, where she is responsible for the aspect of growing the business. During the year ended December 31, 2021, Ms. Peterson had total compensation, including base salary, of $211,152.

The salary and bonus levels, as applicable, of the aforementioned individuals were based on reference to internal pay equity when compared to the compensation paid to employees in similar positions who were not related to our executive officers and directors. They also received equity awards on the same general terms and conditions as applicable to other employees in similar positions who were not related to our executive officers and directors.

Licenses and Subleases

We were a party to several space license agreements and continue to be a party to sublease agreements with the Mount Sinai Health System (which we refer to together with its related entities as “Mount Sinai”) pursuant to which we leased approximately 124,000 square feet of office and laboratory space in Stamford, Connecticut for its headquarters and laboratory operations, and approximately 26,000 square feet of office and laboratory space in New York, New York for additional office space and laboratory operations. Rent expense for all facilities subleased by Icahn School of Medicine at Mount Sinai (“ISMMS”) to us was $4.2 million for the year ended December 31, 2021 and $5.9 million for the year ended December 31, 2020. Future minimum lease payments are expected to total $4.2 million related to all facilities subleased by ISMMS to Sema4 for the year ending December 31, 2022.

Transition Services and Employee Compensation

ISMMS provided transition services, under a transition services agreement and other contractual arrangements with us for services related to finance (accounts payable & purchasing, general accounting, financial systems, and payroll), real estate management, insurance coverage, compliance, equipment subleases, and IT. The transition services agreement expired on March 28, 2021. We made direct payments to ISMMS of approximately $1.6 million pursuant to such transition services agreement in 2021.

We provide partial reimbursement to Mount Sinai for limited compensation, services, and related expenses for certain individuals employed by Mount Sinai and certain individuals employed at both Mount Sinai and our company. For the years ended December 31, 2021 and 2020, the total amount of reimbursement for employee compensation and expenses paid by us to Mount Sinai was equal to approximately $1.2 million and $1.3 million, respectively.

Commercial Relationships

We provide products and services to Mount Sinai at fair market value, including for certain oncology testing, research services and clinical data services. Mount Sinai pays for certain of these services in cash, and for other of these services in kind through performing components of collaborative research projects and/or the provision of intellectual property and data rights.

In particular, these arrangements include a data structuring and curation services agreement, dated August 1, 2019, with ISMMS and certain other Mount Sinai entities, pursuant to which we provide certain data structuring and clinical support services to Mount Sinai, including the delivery to Mount Sinai of a curated dataset and interface allowing Mount Sinai users to query the curated dataset as mutually agreed by the parties. As compensation for these services, Mount Sinai provides us certain rights to use de-identified curated data. The data structuring and curation services agreement has a five-year term and, provided we are not in default under the terms of the agreement, the agreement may be renewed at our option for up to two one-year extension periods. Following the extension periods, the agreement may be further renewed by the mutual agreement of the parties. The agreement may be terminated earlier by Mount Sinai upon certain fundamental breaches by us, by us upon a breach by Mount Sinai of its material obligations, and by either party if certain insolvency or bankruptcy events occur with respect to the other party.

We also receive products and services from Mount Sinai at fair market value, including for certain research and clinical services, development services and lab services, and licenses certain intellectual property from Mount Sinai. Pursuant to these arrangements, we made direct payments to Mount Sinai of approximately $1.4 million and $3.4 million for the years ended December 31, 2021 and 2020, respectively.

Indemnification Agreements

Our Charter contains provisions limiting the liability of directors, and our Bylaws provide that we will indemnify each of our directors to the fullest extent permitted under Delaware law. Our Charter and our Bylaws also provide the Board with discretion to indemnify officers and employees when determined appropriate by our Board.

We have entered into indemnification agreements with each of our directors and executive officers and certain other key employees. The indemnification agreements provide that we will indemnify each of its directors, executive officers, and such other key employees against any and all expenses incurred by that director, executive officer, or other key employee because of his or her status as one of the Company's directors, executive officers, or other key employees, to the fullest extent permitted by Delaware law, our Charter and our Bylaws. In addition, the indemnification agreements provide that, to the fullest extent permitted by Delaware law, the Company will advance all expenses incurred by its directors, executive officers, and other key employees in connection with a legal proceeding involving his or her status as a director, executive officer, or key employee.

Legacy Sema4 Related Party Transactions

Series C Preferred Stock Financing

In July 2020, Legacy Sema4 sold an aggregate of 197,821 shares of its Series C preferred stock at a purchase price of $613.6743 per share to accredited investors for an aggregate purchase price of approximately $121.4 million. On July 22, 2021, each share of Legacy Sema4's Series C preferred stock was cancelled and received a portion of the merger consideration in connection with the completion of the Business Combination, as provided in the Prior Merger Agreement.

The following table summarizes purchases of shares of Legacy Sema4's Series C preferred stock by its executive officers, directors, and holders of more than 5% of its capital stock.

	Shares of Series C Preferred Stock	
Purchaser	**Number of Shares**	**Aggregate Gross Consideration ($)**
Entities affiliated with Blackstone[(1)]	38,130	$ 23,399,401

(1) Consists of 37,138 shares of Series C preferred stock held by BTO Sema4 Holdings L.P., 768 shares of Series C preferred stock held by Blackstone Tactical Opportunities Fund - FD L.P. and 224 shares of Series C preferred stock held by Blackstone Family Tactical Opportunities Investment Partnership III ESC L.P.

Second Amended and Restated Stockholders Agreement

On July 27, 2020, Legacy Sema4 entered into a second amended and restated stockholders' agreement, as amended (the "A&R Stockholders' Agreement"), with certain holders of Legacy Sema4's capital stock. The A&R Stockholders' Agreement provided for certain customary rights with respect to the management of Legacy Sema4, rights of first offer and pre-emptive rights, transfer restrictions, tag-along rights and drag-along rights, which rights and restrictions terminated on July 22, 2021, upon the consummation of the Business Combination. In addition, the A&R Stockholders' Agreement provided for certain customary registration rights.

Related Party Transactions Entered into in Connection with the Business Combination

Business Combination Subscription Agreements

In connection with our Business Combination, the Prior PIPE Investors purchased an aggregate of 35,000,000 shares of our Class A common stock at $10.00 per share, for an aggregate purchase price of $350 million in private placements that closed immediately prior to the closing of the Business Combination. The funds from such private placement were used as part of the consideration to Legacy Sema4's equity holders in connection with the Business Combination. The following table sets forth the number of shares of our Class A common stock that we issued to our directors, executive officers and 5% stockholders and their affiliates in this transaction:

	Shares of Class A Common Stock	
Purchaser	**Number of Shares**	**Aggregate Gross Consideration ($)**
Entities affiliated with Casdin[(1)]	5,000,000	50,000,000
Entities affiliated with Corvex[(2)]	4,000,000	40,000,000
Entities affiliated with Deerfield[(3)]	2,750,000	27,500,000
Total	16,250,000	162,500,000

(1) Consists of 5,000,000 shares of Class A common stock held by affiliates of Casdin Partners Master Fund L.P.
(2) Consists of 4,000,000 shares of Class A common stock held by affiliates of Corvex Management LP.
(3) Consists of 2,750,000 shares of Class A common stock held by affiliates of Deerfield Management Company, L.P.

Amended and Restated Registration Rights Agreement

In connection with the consummation of our Business Combination, we, CMLS Holdings LLC (the "Former Sponsor") and certain other parties thereto (collectively, the "rights holders") entered into an amended and restated registration rights agreement (the "Amended and Restated Registration Rights Agreement"). Pursuant to the terms of the Amended and Restated Registration Rights Agreement, we were required to prepare and file with the SEC, no later than 30 days after the closing date for the Merger, a shelf registration statement for an offering to be made on a continuous basis from time to time with respect to the resale of the registrable shares under the Amended and Restated Registration Rights Agreement. We were further required to use commercially reasonable efforts to cause such shelf registration statement to be declared effective as soon as possible after filing, but in no event later than the earlier of 60 days following the filing date thereof and five business days after the SEC notifies us that it will not review such registration statement, subject to extension in the event that the registration is subject comments from the SEC.

In addition, pursuant to the terms of the Amended and Restated Registration Rights Agreement and subject to certain requirements and customary conditions, including with regard to the number of demand rights that may be exercised, the rights holders may demand at any time or from time to time, that we file a registration statement on Form S-1 or Form S-3 to register certain shares of our Class A common stock held by such rights holders. The Amended and Restated Registration Rights Agreement also provides the rights holders with "piggy-back"

registration rights, subject to certain requirements and customary conditions. We will bear the expenses incurred in connection with the filing of any such registration statement.

ISMMS Lock-Up Agreement

In connection with the execution of the Prior Merger Agreement, we and Icahn School of Medicine at Mount Sinai entered into the ISMMS Lock-Up Agreement whereby ISMMS agreed to certain transfer restrictions in respect of the shares of our Class A common stock issued to ISMMS pursuant to the Prior Merger Agreement. These transfer restrictions expired on January 18, 2022.

Shareholder Lock-up Agreements

In connection with the execution of the Prior Merger Agreement, each stockholder of Legacy Sema4 prior to the closing of the Business Combination holding more than 1% of the outstanding common stock of Legacy Sema4 as of the date thereof, entered into a Stockholder Lock-up Agreement whereby such shareholder agreed to certain transfer restrictions in respect of the shares of our Class A common stock issued to such shareholder pursuant to the Prior Merger Agreement. These transfer restrictions expired on January 18, 2022.

CMLS Related Party Transactions Entered into Prior to the Business Combination

Founder Shares

On July 16, 2020, the Former Sponsor purchased an aggregate of 10,062,500 shares of Class B common stock of CMLS (the "Class B common stock"), for a total purchase price of $25,000, or approximately $0.002 per share. In August 2020, the Former Sponsor transferred 25,000 of Class B common stock to each of Dr. Leproust and Mr. Turner. On September 1, 2020, CMLS effected a 1:1.1 stock split of its Class B common stock, resulting in the Former Sponsor holding an aggregate of 10,993,750 shares of Class B common stock. The shares of Class B common stock automatically converted into Class A common stock on July 22, 2021 in connection with the consummation of the Business Combination (such shares, the "Founder Shares").

Private Placement Warrants

On September 1, 2020, simultaneously with the closing of CMLS's initial public offering (the "Initial Public Offering"), the Former Sponsor and certain of CMLS's independent directors purchased an aggregate of 7,236,667 private placement warrants (the "Private Placement Warrants"), at a price of $1.50 per Private Placement Warrant, for an aggregate purchase price of $10,855,000. The Former Sponsor purchased 6,903,335 Private Placement Warrants, and Dr. Leproust (and/or one or more entities controlled by her) purchased 166,666 Private Placement Warrants. Each Private Placement Warrant is exercisable to purchase one share of Class A common stock at a price of $11.50 per share, subject to adjustment.

Promissory Note–Related Party

On July 16, 2020, the Former Sponsor issued an unsecured promissory note to CMLS (the "Promissory Note"), pursuant to which CMLS could borrow up to an aggregate principal amount of $300,000. The Promissory Note was non-interest bearing and payable on the earlier of (i) December 31, 2020 or (ii) the consummation of the Initial Public Offering. The outstanding balance under the Promissory Note of $165,081 was repaid at the closing of the Initial Public Offering on September 4, 2020.

Insider Letter

On September 1, 2020, in connection with the Initial Public Offering, CMLS, the Former Sponsor and certain insiders of CMLS entered into a letter agreement (the "Insider Letter") providing for, among other things, a lock-up in relation to the Founder Shares until the earlier of (a) one year after the completion of the Business Combination and (b) subsequent to the Business Combination, if the closing price of the Class A common stock equals or exceeds $12.00 per share (as adjusted for stock splits, stock dividends, reorganizations, recapitalizations, and the like) for any 20 trading days within any 30-day trading day period commencing at least 150 days after the Business Combination or (y) the date following the completion of the Business Combination on which we complete a

liquidation, merger, capital stock exchange, reorganization or other similar transaction that results in all of our stockholders having the right to exchange their shares of Class A common stock for cash securities or other property. The Former Sponsor and each insider also agreed not to transfer any Private Placement Warrants (or any share of Class A common stock issued or issuable upon the exercise of the Private Placement Warrants), until 30 days after the completion of the Business Combination.

Forward Purchase Agreement

On September 1, 2020, in connection with the Initial Public Offering, CMLS entered into separate forward purchase agreements with Casdin Capital, LLC ("Casdin") and Corvex Management LP ("Corvex"), in their capacities as investment advisors on behalf of one or more investment funds, clients or accounts managed by each of Casdin and Corvex, respectively (collectively, their "Clients"), pursuant to which, subject to the conditions provided therein, they caused the Clients to purchase from us up to an aggregate amount of 15,000,000 shares of Class A common stock the private placement that closed concurrently with the closing of the Business Combination.

Review, Approval or Ratification of Transactions with Related Parties

On July 22, 2021, we adopted a written related party transaction policy in connection with the completion of the Business Combination. The policy provides that officers, directors, holders of more than 5% of any class of our voting securities, and any member of the immediate family of and any entity affiliated with any of the foregoing persons, will not be permitted to enter into a related-party transaction with us without the prior consent of our audit committee, or other independent members of our Board in the event it is inappropriate for the audit committee to review such transaction due to a conflict of interest. Any request for us to enter into a transaction with an executive officer, director, principal stockholder, or any of their immediate family members or affiliates, in which the amount involved exceeds $120,000, must first be presented to our audit committee for review, consideration, and approval. In approving or rejecting the proposed transactions, our audit committee will take into account all of the relevant facts and circumstances available.

PRINCIPAL SECURITYHOLDERS

Beneficial Ownership of Certain Stockholders, Directors and Executive Officers

The following table sets forth certain information with respect to the beneficial ownership of our Class A common stock as of April 29, 2022, by:

- each stockholder known by us to be the beneficial owner of more than 5% of our Class A common stock;
- each of our named executive officers;
- each of our directors; and
- all of our directors and executive officers as a group.

Percentage ownership of our Class A common stock is based on 377,249,186 shares of our Class A common stock outstanding on April 29, 2022. Beneficial ownership is determined according to the rules of the SEC, which generally provide that a person has beneficial ownership of a security if he, she or it possesses sole or shared voting or investment power over that security, including options and warrants that are currently exercisable or exercisable within 60 days. Except as described in the footnotes below and subject to applicable community property laws and similar laws, we believe that each person listed above has sole voting and investment power with respect to such shares. Unless otherwise noted, the address of each beneficial owner is c/o Sema4 Holdings Corp., 333 Ludlow Street, North Tower, 8th Floor, Stamford, Connecticut 06902.

Name of Beneficial Owners	Number of Shares of Class A Common Stock Beneficially Owned	Percentage of Outstanding Class A Common Stock
5% Stockholders:		
Entities affiliated with Blackstone Group Inc.[1]	28,366,502	7.5
Entities affiliated with Deerfield Management Company, L.P.[2]	18,966,824	5.0
Icahn School of Medicine at Mount Sinai[3]	94,605,473	25.1
OPKO Health, Inc.[4]	80,000,000	21.2
Directors and Named Executive Officers:		
Katherine Stueland	—	—
Eric Schadt[5]	7,845,070	2.0
Isaac Ro[6]	497,859	*
James Coffin[7]	2,696,081	*
Dennis Charney	—	—
Eli D. Casdin[8]	34,167,919	9.1
Emily Leproust[9]	191,666	*
Keith Meister[10]	33,667,919	8.9
Michael Pellini[11]	4,952	*
Jason Ryan[12]	4,952	*
Joshua Ruch[13]	4,952	*
Rachel Sherman[14]	204,310	*
Richard Pfenniger, Jr.	—	—
Directors and executive officers as a group (17 individuals)[15]	**65,454,501**	**16.8**

* Less than one percent

(1) Based on the information set forth in a Schedule 13D/A filed with the SEC on January 20, 2022 by Blackstone Holding III L.P. Consists of (i) 24,404,324 shares of Class A common stock held by BTO Sema4 Holdings L.P., (ii) 505,095 shares of Class A common stock held by

Blackstone Tactical Opportunities Fund - FD L.P., (iii) 147,574 shares of Class A common stock held by Blackstone Family Tactical Opportunities Investment Partnership III ESC L.P., and (iv) (a) 100,000 shares of Class A common stock and (b) warrants to purchase 709,509 shares of Class A common stock which are exercisable within 60 days of April 29, 2022 held by Blackstone Aqua Master Sub-Fund, a sub-fund of Blackstone Global Master Fund ICAV. Also consists of 2,500,000 shares purchased pursuant to the PIPE Investment, consisting of (i) 2,434,863 shares of Class A common stock held by BTO Sema4 Holdings L.P., (ii) 50,402 shares of Class A common stock held by Blackstone Tactical Opportunities Fund - DF L.P., and (iii) 14,735 shares of Class A common stock held by Blackstone Family Tactical Opportunities Investment Partnership III ESC L.P. BTO Holdings Manager L.L.C. is the general partner of BTO Sema4 Holdings L.P. Blackstone Tactical Opportunities Associates L.L.C. is the managing member of BTO Holdings Manager L.L.C. BTOA L.L.C. is the sole member of Blackstone Tactical Opportunities Associates L.L.C. Blackstone Holdings III L.P. is the managing member of BTOA L.L.C. Blackstone Tactical Opportunities Associates III - NQ L.P. is the general partner of Blackstone Tactical Opportunities Fund - FD L.P. BTO DE GP - NQ L.L.C. is the general partner of Blackstone Tactical Opportunities Associates III - NQ L.P. Blackstone Holdings II L.P. is the managing member of BTO DE GP - NQ L.L.C. Blackstone Holdings I/II GP L.L.C. is the general partner of Blackstone Holdings II L.P. Blackstone Alternative Solutions L.L.C. is the investment manager of Blackstone Aqua Master Sub-Fund, a sub-fund of Blackstone Global Master Fund ICAV. Blackstone Holdings I L.P. is the sole member of Blackstone Alternative Solutions L.L.C. Blackstone Holdings I/II GP L.L.C. is the general partner of Blackstone Holdings I L.P. BTO Side-by-Side GP L.L.C. is the general partner of Blackstone Family Tactical Opportunities Investment Partnership III ESC L.P. Blackstone Holdings III L.P. is the sole member of BTO Side-by-Side GP L.L.C. Blackstone Holdings III GP L.P. is the general partner of Blackstone Holdings III L.P. Blackstone Holdings III GP Management L.L.C. is the general partner of Blackstone Holdings III GP L.P. The Blackstone Group Inc. is the sole member of each of Blackstone Holdings I/II GP L.L.C. and Blackstone Holdings III GP Management L.L.C. The sole holder of the Class C common stock of The Blackstone Group Inc. is Blackstone Group Management L.L.C. Blackstone Group Management L.L.C. is wholly-owned by Blackstone's senior managing directors and controlled by its founder, Stephen A. Schwarzman. Each of the Blackstone entities described in this footnote and Stephen A. Schwarzman may be deemed to beneficially own the shares directly or indirectly controlled by such Blackstone entities or him, but each disclaims beneficial ownership of such shares. The address of Mr. Schwarzman and each of the other entities listed in this footnote is c/o The Blackstone Group Inc., 345 Park Avenue, New York, New York 10154.

(2) Based on the information set forth in a Schedule 13G/A filed with the SEC on February 11, 2022 by James E. Flynn. Consists of (i) 7,042,580 shares of Class A common stock held by Deerfield Partners, L.P. and (ii) 6,924,244 shares of Class A common stock held by DPDF. Also consists of 5,000,000 shares of Class A common stock purchased pursuant to the PIPE Investment, consisting of (i) 3,125,000 shares of Class A common stock held by Deerfield Private Design Fund V., L.P. and (ii) 1,875,000 shares of Class A common stock held by Deerfield Partners, L.P. Deerfield Management Company, L.P. (“Deerfield Management”) is the investment manager of Deerfield Partners, L.P. (“Deerfield Partners”) and Deerfield Private Design Fund V, L.P. (“DPDF”). Deerfield Mgmt, L.P. (“Deerfield Mgmt”) is the general partner of Deerfield Partners. Deerfield Mgmt V, L.P. (“Deerfield Mgmt V”) is the general partner of DPDF. James E. Flynn is the sole member of the general partner of each of Deerfield Management, Deerfield Mgmt and Deerfield Mgmt V. Deerfield Management, Deerfield Mgmt and Mr. Flynn may be deemed to beneficially own the securities held by Deerfield Partners. Deerfield Management, Deerfield Mgmt V and Mr. Flynn may be deemed to beneficially own the securities held by DPDF. The address for each of Deerfield Partners, DPDF, Deerfield Management, Deerfield Mgmt, Deerfield Mgmt V and Mr. Flynn is 345 Park Avenue South, New York, New York 10010.

(3) Based on the information set forth in a Schedule 13D/A filed with the SEC on January 21, 2022 by Icahn School of Medicine at Mount Sinai (“ISMMS”). Consists of 88,355,473 shares of Class A common stock held by ISMMS. Also consists of 6,250,000 shares of Class A common stock purchased pursuant to the PIPE Investment and held by ISMMS. The shares are held by ISMMS, a New York Education Corporation. The responsibility and authority for the voting and investment decisions with respect to the shares held by ISMMS is vested in those persons who from time to time are the executive officers of ISMMS under the oversight and direction of its board of directors and its sole member, Mount Sinai Health System, Inc., a New York Not-for-Profit Corporation. The address for Icahn School of Medicine at Mount Sinai is One Gustave L. Levy Place, New York, New York 10029.

(4) Consists of 80,000,000 shares of Class A common stock issued to OPKO in connection with the Acquisition.

(5) Consists of (i) 168,351 shares of Class A common stock and (ii) 7,676,719 shares of Class A common stock subject to options that are exercisable within 60 days of April 29, 2022.

(6) Consists of (i) 254,514 shares of Class A common stock and (ii) 243,345 shares of Class A common stock subject to options that are exercisable within 60 days of April 29, 2022.

(7) Consists of (i) 1,597,524 shares of Class A common stock and (ii) 1,098,557 shares of Class A common stock subject to options that are exercisable within 60 days of April 29, 2022. Dr. Coffin left the Company in February 2022.

(8) Based on the information set forth in a Schedule 13D/A filed with the SEC on January 19, 2022 by CMLS Holdings LLC. Includes (i) 5,000,000 shares of Class A common stock held indirectly by Casdin Partners Master Fund L.P., and (ii) (x) 10,993,750 shares of Class A common stock and (y) 6,736,669 shares of Class A common stock underlying private placement warrants that are exercisable within 60 days of April 29, 2022 held indirectly by CMLS Holdings LLC (the “Former Sponsor”). Also consists of 11,437,500 shares of Class A common stock purchased pursuant to the PIPE Investment and held by Casdin Partners Master Fund L.P. The Board of Managers of the Former Sponsor is comprised of Mr. Eli Casdin and Mr. Keith Meister who share voting and investment discretion with respect to the Class A common stock held of record by CMLS Holdings LLC. Mr. Casdin is a member of the Board. C-LSH LLC and M-LSH LLC are the members of CMLS Holdings LLC, and Mr. Casdin and Mr. Meister are the managing members of C-LSH LLC and M-LSH LLC, respectively. As such, each of the foregoing may be deemed to have or share beneficial ownership of the Class A common stock held directly by CMLS Holdings LLC. The business address of the Former Sponsor is c/o Corvex Management, L.P., 667 Madison Avenue, New York, NY 10065.

(9) Consists of (i) 25,000 shares of Class A common stock and (ii) 166,666 shares of Class A common stock underlying private placement warrants that are exercisable within 60 days of April 29, 2022.

(10) Based on the information set forth in a Schedule 13D/A filed with the SEC on January 19, 2022 by CMLS Holdings LLC. Includes (i) 4,500,000 shares of Class A common stock held indirectly by Corvex Management, L.P. and (ii) (x) 10,993,750 shares of Class A common stock and (y) 6,736,669 shares of Class A common stock underlying private placement warrants that are exercisable within 60 days of April 29, 2022 held indirectly by the Former Sponsor. Also consists of 11,437,500 shares of Class A common stock purchased pursuant to the PIPE Investment, consisting of (i) 7,320,000 shares of Class A common stock held by Corvex Select Equity Master Fund, L.P., (ii)

3,557,000 shares of Class A common stock held by Corvex Master Fund, L.P. and (iii) 560,500 shares of Class A common stock held by Corvex Dynamic Equity Select Master Fund, L.P. The Board of Managers of the Former Sponsor is comprised of Mr. Eli Casdin and Mr. Keith Meister who share voting and investment discretion with respect to the Class A common stock held of record by CMLS Holdings LLC. C-LSH LLC and M-LSH LLC are the members of CMLS Holdings LLC, and Mr. Casdin and Mr. Meister are the managing members of C-LSH LLC and M-LSH LLC, respectively. As such, each of the foregoing may be deemed to have or share beneficial ownership of the Class A common stock held directly by CMLS Holdings LLC. The business address of the Former Sponsor is c/o Corvex Management, L.P., 667 Madison Avenue, New York, NY 10065.

(11) Consists of 4,952 shares of Class A common stock subject to options that are exercisable within 60 days of April 29, 2022.

(12) Consists of 4,952 shares of Class A common stock subject to options that are exercisable within 60 days of April 29, 2022.

(13) Consists of 4,952 shares of Class A common stock subject to options that are exercisable within 60 days of April 29, 2022.

(14) Consists of 204,310 shares of Class A common stock subject to options that are exercisable within 60 days of April 29, 2022.

(15) Consists of (i) 29,707,240 shares of Class A common stock held directly and indirectly by all current directors and executive officers of the Company as a group, (ii) 74,883 shares of Class A common stock issuable pursuant to RSUs held directly by all current directors and executive officers of the Company as a group and that will be vested within 60 days of April 29, 2022, (iii) 12,630,612 shares of Class A common stock subject to options held directly by all current directors and executive officers of the Company as a group and that are exercisable within 60 days of April 29, 2022, and (iii) 6,903,335 shares of Class A common stock underlying private placement warrants held directly and indirectly by all current directors and executive officers of the Company as a group and that are exercisable within 60 days of April 29, 2022.

DESCRIPTION OF SECURITIES

The following summary sets forth certain material terms and provisions of our securities that are registered under Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). This description also summarizes relevant provisions of the General Corporation Law of Delaware (the "DGCL"). The following description is a summary and does not purport to be a complete description of the rights and preferences of our securities. It is subject to, and qualified in its entirety by reference to, the applicable provisions of the DGCL and our third amended and restated certificate of incorporation, as amended (our "Certificate of Incorporation"), and our restated bylaws (our "Bylaws"), each of which is filed as an exhibit hereto. We encourage you to read our Amended and Certificate of Incorporation, our Bylaws, and the applicable provisions of the DGCL for additional information.

Authorized and Outstanding Stock

Our Certificate of Incorporation authorizes the issuance of 1,000,000,000 shares of Class A common stock, $0.0001 par value per share. The outstanding shares of our Class A common stock are duly authorized, validly issued, fully paid and non-assessable. As of April 29, 2022, there were 377,249,186 shares of our Class A common stock outstanding, no shares of preferred stock outstanding and 21,994,972 warrants outstanding.

Common Stock

Our Certificate of Incorporation provides that each share of our Class A common stock has the same relative rights and is identical in all respects to each other share of our Class A common stock. The rights, preferences and privileges of holders of our Class A common stock are subject to the rights, preferences and privileges of the holders of shares of any series of preferred stock that we have issued or may issue in the future.

Voting Power

Except as otherwise required by law or as otherwise provided in any certificate of designation for any series of preferred stock, or under our Certificate of Incorporation, the holders of common stock possess all voting power for the election of our directors and all other matters requiring stockholder action and are entitled to one vote per share on matters to be voted on by stockholders. The holders of common stock shall at all times vote together as one class on all matters submitted to a vote of the holders of common stock under our Certificate of Incorporation.

Dividends

Subject to the rights, if any of the holders of any outstanding shares of preferred stock, under our Certificate of Incorporation, holders of common stock are entitled to receive such dividends and other distributions, if any, as may be declared from time to time by our board of directors (the "Board") in its discretion out of funds legally available therefor and shall share equally on a per share basis in such dividends and distributions.

Liquidation, Dissolution and Winding Up

In the event of the voluntary or involuntary liquidation, dissolution or winding-up of the Company our Certificate of Incorporation, the holders of common stock will be entitled to receive all the remaining assets of the Company available for distribution to stockholders, ratably in proportion to the number of shares of common stock held by them, after the rights of the holders of the preferred stock have been satisfied.

Preemptive or Other Rights

Under our Certificate of Incorporation, our stockholders have no preemptive or other subscription rights and there are no sinking fund or redemption provisions applicable to our Class A common stock.

Election of Directors

Under the terms of our Certificate of Incorporation, the term of the Class I Directors in place at such time will expire at our first annual meeting of the stockholders of the following the effectiveness of our Certificate of Incorporation; the term of the Class II Directors in place at such time will expire at our second annual meeting of the

stockholders following the effectiveness of our Certificate of Incorporation; and the term of the Class III Directors in place at such time will expire at our third annual meeting of the stockholders following the effectiveness of our Certificate of Incorporation.

Preferred Stock

Our Certificate of Incorporation provides that shares of preferred stock may be issued from time to time in one or more series. Our Board is authorized to fix the voting rights, if any, designations, powers, preferences and relative, participating, optional, special and other rights, if any, and any qualifications, limitations and restrictions thereof, applicable to the shares of each series. Our Board is able, without stockholder approval, to issue preferred stock with voting and other rights that could adversely affect the voting power and other rights of the holders of the Class A common stock and could have anti-takeover effects. The ability of our Board to issue preferred stock without stockholder approval could have the effect of delaying, deferring or preventing a change of control of us or the removal of existing management. We have no preferred stock outstanding at the date hereof. Although we do not currently intend to issue any shares of preferred stock, we cannot assure you that we will not do so in the future.

Warrants

Public Warrants

Each whole public warrant entitles the registered holder to purchase one share of our Class A common stock at a price of $11.50 per whole share, subject to adjustment as discussed below, at any time commencing on the later of 12 months from the closing of CMLS's initial public offering ("IPO") or 30 days after the completion of the Business Combination. Pursuant to the warrant agreement, a warrant holder may exercise its public warrants only for a whole number of shares of Class A common stock. This means that only a whole public warrant may be exercised at any given time by a warrant holder. No fractional public warrants will be issued upon separation of the units and only whole public warrants will trade. The public warrants will expire five years after the completion of CMLS' initial business combination, at 5:00 p.m., New York City time, or earlier upon redemption or liquidation.

We are not obligated to deliver any shares of Class A common stock pursuant to the exercise of a public warrant and will have no obligation to settle such public warrant exercise unless a registration statement under the Securities Act of 1933, as amended (the "Securities Act") with respect to the shares of Class A common stock underlying the public warrants is then effective and a prospectus relating thereto is current, subject to our satisfying our obligations described below with respect to registration. No public warrant will be exercisable for cash or on a cashless basis, and we will not be obligated to issue any shares to holders seeking to exercise their public warrants, unless the issuance of the shares upon such exercise is registered or qualified under the securities laws of the state of the exercising holder, or an exemption is available. In the event that the conditions in the two immediately preceding sentences are not satisfied with respect to a public warrant, the holder of such public warrant will not be entitled to exercise such public warrant and such public warrant may have no value and expire worthless. In the event that a registration statement is not effective for the exercised public warrants, the purchaser of a unit containing such public warrant will have paid the full purchase price for the unit solely for the share of Class A common stock underlying such unit.

Redemption of Warrants When the Price per Share of Class A Common Stock Equals or Exceeds $18.00 - Once the warrants become exercisable, we may redeem the outstanding public warrants:

- in whole and not in part;
- at a price of $0.01 per public warrant;
- upon not less than 30 days' prior written notice of redemption to each warrant holder; and
- if, and only if, the closing price of the Class A common stock equals or exceeds $18.00 per share (as adjusted) for any 20 trading days within a 30-trading day period ending three trading days before sending the notice of redemption to warrant holders (the "Reference Value")

If and when the warrants become redeemable by us, we may exercise its redemption right even if it is unable to register or qualify the underlying securities for sale under all applicable state securities laws.

Redemption of Warrants When the Price per Share of Class A Common Stock Equals or Exceeds $10.00 - Once the warrants become exercisable, we may redeem the outstanding warrants:

- in whole and not in part;
- at $0.10 per warrant upon a minimum of 30 days' prior written notice of redemption provided that holders will be able to exercise their warrants on a cashless basis prior to redemption and receive that number of shares based on the redemption date and the fair market value of the Class A common stock;
- if, and only if, the closing price of the Class A common stock equals or exceeds $10.00 per share (as adjusted) for any 20 trading days within the 30-trading day period ending three trading days before we send the notice of redemption to the warrant holders; and
- if the closing price of the Class A common stock for any 20 trading days within a 30-trading day period ending three trading days before we sends notice of redemption to the warrant holders is less than $18.00 per share (as adjusted), the Private Placement Warrants must also be concurrently called for redemption on the same terms as the outstanding Public Warrants, as described above.

We have established the last of the redemption criterion discussed above to prevent a redemption call unless there is at the time of the call a significant premium to the warrant exercise price. If the foregoing conditions are satisfied and we issue a notice of redemption of the public warrants, each warrant holder will be entitled to exercise his, her or its public warrant prior to the scheduled redemption date. However, the price of the Class A common stock may fall below the $18.00 redemption trigger price as well as the $11.50 warrant exercise price after the redemption notice is issued.

Redemption procedures and cashless exercise.

If we call the public warrants for redemption as described above, our management will have the option to require any holder that wishes to exercise his, her or its public warrant to do so on a "cashless basis." In determining whether to require all holders to exercise their public warrants on a "cashless basis," our management will consider, among other factors, our cash position, the number of public warrants that are outstanding and the dilutive effect on our stockholders of issuing the maximum number of shares of Class A common stock issuable upon the exercise of our public warrants. If our management takes advantage of this option, all holders of public warrants would pay the exercise price by surrendering their public warrants for that number of shares of Class A common stock equal to the quotient obtained by dividing (i) the product of the number of shares of Class A common stock underlying the public warrants, multiplied by the difference between the exercise price of the public warrants and the "fair market value" (defined below) by (ii) the fair market value. The "fair market value" shall mean the average reported last sale price of the Class A common stock for the 10 trading days ending on the third trading day prior to the date on which the notice of redemption is sent to the holders of public warrants. If our management takes advantage of this option, the notice of redemption will contain the information necessary to calculate the number of shares of Class A common stock to be received upon exercise of the public warrants, including the "fair market value" in such case. Requiring a cashless exercise in this manner will reduce the number of shares to be issued and thereby lessen the dilutive effect of a warrant redemption. We believe this feature is an attractive option to us if we do not need the cash from the exercise of the public warrants after the Business Combination. If we call our public warrants for redemption and our management does not take advantage of this option, the Former Sponsor and its permitted transferees would still be entitled to exercise their private placement warrants for cash or on a cashless basis using the same formula described above that other warrant holders would have been required to use had all warrant holders been required to exercise their public warrants on a cashless basis, as described in more detail below.

A holder of a public warrant may notify us in writing in the event it elects to be subject to a requirement that such holder will not have the right to exercise such public warrant, to the extent that after giving effect to such exercise, such person (together with such person's affiliates), to the warrant agent's actual knowledge, would

beneficially own in excess of 9.8% (or such other amount as a holder may specify) of the shares of Class A common stock outstanding immediately after giving effect to such exercise.

Anti-dilution Adjustments. If the number of outstanding shares of Class A common stock is increased by a stock dividend payable in shares of Class A common stock, or by a split-up of shares of Class A common stock or other similar event, then, on the effective date of such stock dividend, split-up or similar event, the number of shares of Class A common stock issuable on exercise of each public warrant will be increased in proportion to such increase in the outstanding shares of Class A common stock. A rights offering to holders of Class A common stock entitling holders to purchase shares of Class A common stock at a price less than the fair market value will be deemed a stock dividend of a number of shares of Class A common stock equal to the product of (i) the number of shares of Class A common stock actually sold in such rights offering (or issuable under any other equity securities sold in such rights offering that are convertible into or exercisable for common stock) multiplied by (ii) one minus the quotient of (a) the price per share of Class A common stock paid in such rights offering divided by (b) the fair market value. For these purposes (1) if the rights offering is for securities convertible into or exercisable for common stock, in determining the price payable for common stock, there will be taken into account any consideration received for such rights, as well as any additional amount payable upon exercise or conversion and (2) fair market value means the volume weighted average price of Class A common stock as reported during the 10 trading day period ending on the trading day prior to the first date on which the shares of Class A common stock trade on the applicable exchange or in the applicable market, regular way, without the right to receive such rights.

In addition, if we, at any time while the public warrants are outstanding and unexpired, pay a dividend or make a distribution in cash, securities or other assets to the holders of Class A common stock on account of such shares of Class A common stock (or other shares of our capital stock into which the public warrants are convertible), other than (i) as described above; (ii) certain ordinary cash dividends; (iii) to satisfy the redemption rights of the holders of Class A common stock in connection with a proposed initial business combination; (iv) to satisfy the redemption rights of the holders of Class A common stock in connection with a stockholder vote to amend our current certificate of incorporation to modify the substance or timing of our obligation to redeem 100% of our public shares if we do not complete a business combination within 24 months from the closing of CMLS's IPO, or (v) in connection with the redemption of our public shares upon our failure to complete the Business Combination, then the warrant exercise price will be decreased, effective immediately after the effective date of such event, by the amount of cash and/or the fair market value of any securities or other assets paid on each share of Class A common stock in respect of such event.

If the number of outstanding shares of our Class A common stock is decreased by a consolidation, combination, reverse stock split or reclassification of shares of Class A common stock or other similar event, then, on the effective date of such consolidation, combination, reverse stock split, reclassification or similar event, the number of shares of Class A common stock issuable on exercise of each public warrant will be decreased in proportion to such decrease in outstanding shares of Class A common stock.

Whenever the number of shares of Class A common stock purchasable upon the exercise of the public warrants is adjusted, as described above, the warrant exercise price will be adjusted by multiplying the warrant exercise price immediately prior to such adjustment by a fraction (x) the numerator of which will be the number of shares of Class A common stock purchasable upon the exercise of the public warrants immediately prior to such adjustment, and (y) the denominator of which will be the number of shares of Class A common stock so purchasable immediately thereafter.

In case of any reclassification or reorganization of the outstanding shares of Class A common stock (other than those described above or that solely affects the par value of such shares of Class A common stock), or in the case of any merger or consolidation of us with or into another corporation (other than a consolidation or merger in which we are the continuing corporation and that does not result in any reclassification or reorganization of our outstanding shares of Class A common stock), or in the case of any sale or conveyance to another corporation or entity of the assets or other property of us as an entirety or substantially as an entirety in connection with which we are dissolved, the holders of the public warrants will thereafter have the right to purchase and receive, upon the basis and upon the terms and conditions specified in the public warrants and in lieu of the shares of our Class A common stock immediately theretofore purchasable and receivable upon the exercise of the rights represented thereby, the kind and

amount of shares of stock or other securities or property (including cash) receivable upon such reclassification, reorganization, merger or consolidation, or upon a dissolution following any such sale or transfer, that the holder of the public warrants would have received if such holder had exercised their public warrants immediately prior to such event. Additionally, if less than 70% of the consideration receivable by the holders of Class A common stock in such a transaction is payable in the form of Class A common stock in the successor entity that is listed for trading on a national securities exchange or is quoted in an established over-the-counter market, or is to be so listed for trading or quoted immediately following such event, and if the registered holder of the public warrant properly exercises the public warrant within 30 days following public disclosure of such transaction, the warrant exercise price will be reduced as specified in the warrant agreement based on the per share consideration minus Black-Scholes Warrant Value (as defined in the warrant agreement) of the public warrant.

The public warrants have been issued in registered form under a warrant agreement between Continental Stock Transfer & Trust Company, as warrant agent, and us. You should review a copy of the warrant agreement, which is filed as an exhibit to the registration statement pertaining to CMLS's IPO, for a complete description of the terms and conditions applicable to the public warrants. The warrant agreement provides that the terms of the public warrants may be amended without the consent of any holder to cure any ambiguity or correct any defective provision, but requires the approval by the holders of at least 50% of the then outstanding public warrants to make any change that adversely affects the interests of the registered holders of public warrants.

The public warrants may be exercised upon surrender of the warrant certificate on or prior to the expiration date at the offices of the warrant agent, with the exercise form on the reverse side of the warrant certificate completed and executed as indicated, accompanied by full payment of the exercise price (or on a cashless basis, if applicable), by certified or official bank check payable to us, for the number of public warrants being exercised. The warrant holders do not have the rights or privileges of holders of Class A common stock and any voting rights until they exercise their public warrants and receive shares of Class A common stock. After the issuance of shares of Class A common stock upon exercise of the public warrants, each holder will be entitled to one vote for each share held of record on all matters to be voted on by stockholders.

Warrants may be exercised only for a whole number of shares of Class A common stock. No fractional shares will be issued upon exercise of the public warrants. If, upon exercise of the public warrants, a holder would be entitled to receive a fractional interest in a share, we will, upon exercise, round down to the nearest whole number the number of shares of Class A common stock to be issued to the warrant holder. As a result, warrant holders not purchasing public warrants in multiples of three warrants will not obtain value from the fractional interest that will not be issued.

Private Placement Warrants

The private placement warrants are identical to the public warrants underlying the units sold in CMLS's IPO, except that (1) the private placement warrants and the Class A common stock issuable upon the exercise of the private placement warrants will not be transferable, assignable or saleable until 30 days after the completion of the Business Combination, subject to certain limited exceptions, (2) the private placement warrants will be exercisable on a cashless basis, (3) the private placement warrants will be non-redeemable (except as described above in "Redemption of Warrants When the Price per Share of Class A common stock Equals or Exceeds $10.00") so long as they are held by the initial purchasers or their permitted transferees, and (4) the holders of the private placement warrants and the Class A common stock issuable upon the exercise of the private placement warrants will have certain registration rights. If the private placement warrants are held by someone other than the initial purchasers or their permitted transferees, the private placement warrants will be redeemable by us and exercisable by such holders on the same basis as the public warrants.

Dividends

We have not paid any cash dividends on our Class A common stock to date and do not intend to pay cash dividends. The payment of cash dividends in the future will be dependent upon our revenues and earnings, if any, capital requirements and general financial condition. The payment of any cash dividends will be within the discretion of our Board at such time. In addition, our Board is not currently contemplating and does not anticipate

declaring any stock dividends in the foreseeable future. Further, if we incur any indebtedness, our ability to declare dividends may be limited by restrictive covenants we may agree to in connection therewith.

Transfer Agent and Warrant Agent

The transfer agent for our Class A common stock and warrant agent for our warrants is Continental Stock Transfer & Trust Company. We have agreed to indemnify Continental Stock Transfer & Trust Company in its roles as transfer agent and warrant agent, its agents and each of its stockholders, directors, officers and employees against all liabilities, including judgments, costs and reasonable counsel fees that may arise out of acts performed or omitted for its activities in that capacity, except for any liability due to any gross negligence, willful misconduct or bad faith of the indemnified person or entity.

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

Provisions of the DGCL and our Certificate of Incorporation could make it more difficult to acquire us by means of a tender offer, a proxy contest or otherwise, or to remove incumbent officers and directors. These provisions, summarized below, are intended to discourage coercive takeover practices and inadequate takeover bids and to encourage persons seeking to acquire control of us to first negotiate with the board of directors. We believe that the benefits of these provisions outweigh the disadvantages of discouraging certain takeover or acquisition proposals because, among other things, negotiation of these proposals could result in an improvement of their terms and enhance the ability of our Board to maximize stockholder value. However, these provisions may delay, deter or prevent a merger or acquisition of us that a stockholder might consider is in its best interest, including those attempts that might result in a premium over the prevailing market price of the Class A common stock.

In addition, our Certificate of Incorporation provide for certain other provisions that may have an anti-takeover effect:

- There is no cumulative voting with respect to the election of directors.
- Our Board is empowered to elect a director to fill a vacancy created by the expansion of the Board or the resignation, death, or removal of a director in certain circumstances.
- Directors may only be removed from the Board for cause.
- Our Board is classified into three classes of directors. As a result, in most circumstances, a person can gain control of our Board by successfully engaging in a proxy contest at two or more annual meetings.
- A prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders.
- A prohibition on stockholders calling a special meeting and the requirement that a meeting of stockholders may only be called by members of our Board, which may delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors.
- Our authorized but unissued common stock and preferred stock are available for future issuances without stockholder approval and could be utilized for a variety of corporate purposes, including future offerings to raise additional capital, acquisitions and employee benefit plans. Our Board is entitled, without further stockholder approval, to designate one or more series of preferred stock and the associated voting rights, preferences and privileges of such series of preferred stock. The existence of authorized but unissued and unreserved common stock and preferred stock could render more difficult or discourage an attempt to obtain control of us by means of a proxy contest, tender offer, merger or otherwise.

Forum Selection Clause

Our Certificate of Incorporation includes a forum selection clause. Our Certificate of Incorporation provides that, subject to limited exceptions, the Court of Chancery of the State of Delaware and federal court within the State of Delaware will be exclusive forums for any

- derivative action or proceeding brought on our behalf;
- action asserting a claim of breach of a fiduciary duty owed by, or other wrongdoing by, any of our directors, officers, stockholders, employees or agents to us or our stockholders;
- action asserting a claim against us or any of our directors, officers, stockholders, employees or agents arising pursuant to any provision of the DGCL, our Certificate of Incorporation or Bylaws or as to which the DGCL confers jurisdiction on the Court of Chancery of the State of Delaware;
- action to interpret, apply, enforce or determine the validity of our Certificate of Incorporation or the Bylaws; or
- other action asserting a claim against us or any of our directors, officers, stockholders, employees or agents that is governed by the internal affairs doctrine.

This choice of forum provision does not apply to actions brought to enforce a duty or liability created by the Exchange Act or any other claim for which federal courts have exclusive jurisdiction. Furthermore, in accordance with our Bylaws, unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States will be, to the fullest extent permitted by law, the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. We intend for this provision to apply to any complaints asserting a cause of action under the Securities Act despite the fact that Section 22 of the Securities Act creates concurrent jurisdiction for the federal and state courts over all actions brought to enforce any duty or liability created by the Securities Act or the rules and regulations promulgated thereunder. Please see *"Risk Factors—Risks Related to Being a Public Company—Our Charter designates the Court of Chancery of the State of Delaware and federal court within the State of Delaware as the exclusive forum for certain types of actions and proceedings that our stockholders may initiate, which could limit a stockholder's ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees."*

Listing of Securities

Our Class A common stock and warrants are listed on Nasdaq under the symbols "SMFR" and "SMFRW," respectively.

SELLING STOCKHOLDERS

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 80,000,000 Stock Consideration Shares;
- up to 30,864,198 Milestone Shares; and
- up to 50,000,000 PIPE Shares.

The term "Selling Stockholders" includes the stockholders listed in the tables below and their permitted transferees.

The following tables provide, as of the date of this prospectus, information regarding the beneficial ownership of our Class A common stock of each Selling Stockholder, the number of shares of Class A common stock that may be sold by each Selling Stockholder under this prospectus and that each Selling Stockholder will beneficially own after this offering.

Pursuant to the terms of the Merger Agreement, we may issue an aggregate of up to 30,864,198 Milestone Shares to OPKO as consideration for the $150 million in Milestone Payments. Each Milestone Payment, if and to the extent earned under the terms of the Merger Agreement, will be satisfied through the payment and/or issuance of a combination of cash and shares of Class A common stock (valued at $4.86 per share based on the average of the daily volume average weighted price of the Company's Class A common stock over the period of 30 trading days ended January 12, 2022), with such mix to be determined in the Company's sole discretion.

Because each Selling Stockholder may dispose of all, none or some portion of their securities, no estimate can be given as to the number of securities that will be beneficially owned by a Selling Stockholder upon termination of this offering. For purposes of the table below, however, we have assumed that after termination of this offering none of the securities covered by this prospectus will be beneficially owned by the Selling Stockholder and further assumed that the Selling Stockholders will not acquire beneficial ownership of any additional securities during the offering. In addition, the Selling Stockholders 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 tables is presented.

We may amend or supplement this prospectus from time to time in the future to update or change this Selling Stockholders list and the securities that may be resold.

Please see the section titled "*Plan of Distribution*" for further information regarding the Selling Stockholders' method of distributing these shares of Class A common stock.

	Shares of Class A Common Stock			
Name	**Number Beneficially Owned Prior to Offering [1]**	**Number Registered for Sale Hereby**	**Number Beneficially Owned After Offering**	**Percent Owned After Offering [2]**
OPKO Health, Inc.[3]	110,864,198	110,864,198	—	—
Entities affiliated with Blackstone[4]	27,556,993	2,500,000	25,056,993	6.6 %
Entities affiliated with Casdin[5]	16,437,500	11,437,500	5,000,000	1.3 %
Entities advised by Corvex Management[6]	15,437,500	11,437,500	4,000,000	1.1 %
Entities affiliated with Deerfield Management Company, L.P.[7]	18,848,488	5,000,000	13,848,488	3.7 %
Icahn School of Medicine at Mount Sinai[8]	94,605,472	6,250,000	88,355,472	23.4 %
Perceptive Life Sciences Master Fund, Ltd.[9]	2,500,000	2,500,000	—	—
Pfizer Inc.[10]	6,250,000	6,250,000	—	—

	Shares of Class A Common Stock			
Name	Number Beneficially Owned Prior to Offering [1]	Number Registered for Sale Hereby	Number Beneficially Owned After Offering	Percent Owned After Offering [2]
Entities affiliated with Vaal Investment Partners Q9 LP[11]	2,125,000	2,125,000	—	—
Section 32 Fund 2, L.P.[12]	8,699,227	1,250,000	7,449,227	2.0 %
Third Point Loan LLC[13]	1,250,000	1,250,000	—	—
TOTALS	**304,574,378**	**160,864,198**	**143,710,180**	38.1 %

* Less than 1%

(1) The table includes Stock Consideration Shares, Milestone Shares (including both shares beneficially owned as determined in accordance with Rule 13d-3 of the Exchange Act and additional shares the holder has the contingent right receive) and PIPE Shares (collectively, the "Resale Securities"). We do not know when or in what amounts the Selling Stockholders will offer the Resale Securities for sale, if at all.

(2) The percentage of shares to be beneficially owned after completion of the offering is calculated on the basis of 377,249,186 shares of Class A common stock outstanding, assuming the issuance of 30,864,198 Milestone Shares, and the sale of all Resale Securities by the Selling Stockholders.

(3) Shares hereby offered consist of (i) 80,000,000 Stock Consideration Shares and (ii) 30,864,198 Milestone Shares held by OPKO.

(4) Shares hereby offered consist of (i) 2,434,863 PIPE Shares held by BTO Sema4 Holdings L.P., (ii) 50,402 PIPE Shares held by Blackstone Tactical Opportunities Fund - FD L.P., and (iii) 14,735 PIPE Shares held by Blackstone Family Tactical Opportunities Investment Partnership III ESC L.P.

(5) Shares hereby offered consist of 11,437,500 PIPE Shares held by Casdin Partners Master Fund, L.P. Casdin Capital, LLC is the investment adviser to Casdin Partners Master Fund, LP and Casdin Partners GP, LLC is the general partner of Casdin Partners Master Fund LP. Eli Casdin is the managing member of Casdin Capital, LLC and Casdin Partners GP, LLC. As such, each of the foregoing may be deemed to have or share beneficial ownership of the Common Stock held directly by Casdin Partners Master Fund, LP. Mr. Casdin is member of Sema4 Holdings' board of directors. The business address of Casdin Partners Master Fund L.P. and Mr. Casdin is c/o Casdin Capital, LLC, 1350 Avenue of the Americas, Suite 2600, New York, NY 10019.

(6) Shares hereby offered consist of f (i) 7,320,000 PIPE Shares held by Corvex Select Equity Master Fund, L.P., (ii) 3,557,000 PIPE Shares held by Corvex Master Fund, L.P. and (iii) 560,500 PIPE Shares held by Corvex Dynamic Equity Select Master Fund, L.P. Since January 2022, Keith Meister, Managing Partner and Chief Investment Officer of Corvex Management LP, has served as a director on the Board and as Chairman of the Audit Committee.

(7) Shares hereby offered consist of (i) 3,125,000 PIPE Shares held by Deerfield Private Design Fund V., L.P. and (ii) 1,875,000 PIPE Shares held by Deerfield Partners, L.P. Deerfield Mgmt,III, L.P. is the general partner of Deerfield Private Design Fund V, L.P. Deerfield Mgmt, L.P. is the general partner of Deerfield Partners, L.P. Deerfield Management Company, L.P. is the investment manager of each of Deerfield Private Design Fund V, L.P. and Deerfield Partners, L.P. Mr. James E. Flynn is the sole member of the general partner of each of Deerfield Private Design Fund V, L.P., Deerfield Partners, L.P. and Deerfield Management Company, L.P. Deerfield Mgmt,III, L.P. may be deemed to beneficially own the securities held by Deerfield Private Design Fund V, L.P.. Deerfield Mgmt, L.P. may be deemed to beneficially own the securities held by Deerfield Partners, L.P. Each of Deerfield Management Company, L.P. and Mr. Flynn may be deemed to beneficially own the securities held by each of Deerfield Private Design Fund V, L.P. and Deerfield Partners, L.P. The address for the foregoing entities and individual is 345 Park Avenue South, 12th Floor, New York, NY 10010.

(8) Shares hereby offered consist of 6,250,000 PIPE Shares held by ISMMS.

(9) Shares hereby offered consist of 2,500,000 PIPE Shares held by Perceptive Life Sciences Master Fund, Ltd.

(10) Shares hereby offered consist of 6,250,000 PIPE Shares held by Pfizer Inc.

(11) Shares hereby offered consist of (i) 1,632,963 PIPE Shares held by Vaal Investment Partners Q9 LP, (ii) 329,665 PIPE Shares held by RUGU2 LLC and (iii) 162,372 PIPE Shares held by Kariba LLC. These entities are affiliated with Joshua Ruch, a member of our Board.

(12) Shares hereby offered consist of 1,250,000 PIPE Shares held by Section 32 Fund 2, L.P. Section32 is an affiliate of Michael Pellini, a member of our Board.

(13) Shares hereby offered consist of 1,250,000 PIPE Shares held by Third Point Loan LLC.

SECURITIES ACT RESTRICTIONS ON RESALE OF OUR SECURITIES

Pursuant to Rule 144 under the Securities Act ("Rule 144"), a person who has beneficially owned shares of our Class A common stock or warrants that were acquired from us in an unregistered, private sale ("restricted securities") for at least six months would be entitled to sell their securities provided that (i) such person is not deemed to have been an affiliate of ours at the time of, or at any time during the three months preceding, a sale and (ii) we are subject to the Exchange Act periodic reporting requirements for at least three months before the sale and have filed all required reports under Section 13 or 15(d) of the Exchange Act during the 12 months (or such shorter period as we were required to file reports) preceding the sale.

Persons who have beneficially owned restricted securities for at least six months but who are affiliates of ours at the time of, or at any time during the three months preceding, a sale, or who otherwise beneficially own shares of our Class A common stock or warrants ("control securities"), would be subject to additional restrictions, by which such person would be entitled to sell within any three-month period only a number of securities that does not exceed the greater of:

- 1% of the total number of shares or other units of the class then outstanding; or
- the average weekly reported trading volume of such securities during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale.

Sales by our affiliates under Rule 144 are also limited by manner of sale provisions and notice requirements and to the availability of current public information about us.

Restrictions on the Use of Rule 144 by Shell Companies or Former Shell Companies

Rule 144 is not available for the resale of securities initially issued by shell companies (other than business combination related shell companies) or issuers that have been at any time previously a shell company. However, Rule 144 also includes an important exception to this prohibition if the following conditions are met:

- the issuer of the securities that was formerly a shell company has ceased to be a shell company;
- the issuer of the securities is subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act;
- the issuer of the securities has filed all Exchange Act reports and material required to be filed, as applicable, during the preceding twelve months (or such shorter period that the issuer was required to file such reports and materials), other than Form 8-K reports; and
- at least one year has elapsed from the time that the issuer filed current Form 10 type information with the SEC reflecting its status as an entity that is not a shell company.

As a result, our affiliates will be able to sell their shares of common stock and warrants, and any shares of common stock received upon exercise of the warrants, as applicable, pursuant to Rule 144 without registration one year after the filing of our "Super" Form 8-K with Form 10 type information, which was filed on July 28, 2021. Absent registration under the Securities Act, our affiliates will not be permitted to sell their control securities under Rule 144 earlier than one year after the filing of the "Super" Form 8-K.

We are no longer a shell company, and as a result, once the conditions set forth in the exceptions listed above are satisfied, Rule 144 will become available for the resale of restricted securities and control securities.

PLAN OF DISTRIBUTION

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

The Selling Stockholders may use any one or more of the following methods when disposing of their shares of Class A common stock or interests therein:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- one or more underwritten offerings;
- block trades (which may involve crosses) 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 accounts;
- an exchange distribution and/or secondary distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- distributions to their employees, partners, members or stockholders;
- short sales (including short sales “against the box”) effected after the date of the registration statement of which this prospectus is a part is declared effective by the SEC;
- through the writing or settlement of standardized or over-the-counter options or other hedging transactions, whether through an options exchange or otherwise;
- in market transactions, including transactions on a national securities exchange or quotations service or over-the-counter market;
- by pledge to secure debts and other obligation;
- directly to purchasers, including our affiliates and stockholders, in a rights offering or otherwise;
- through agents;
- broker-dealers may agree with the Selling Stockholders to sell a specified number of such shares of Class A common stock at a stipulated price per share; and
- through a combination of any of these methods or any other method permitted by applicable law.

The Selling Stockholders may effect the distribution of our Class A common stock from time to time in one or more transactions either:

- at a fixed price or prices, which may be changed from time to time;
- at market prices prevailing at the time of sale;
- at prices relating to the prevailing market prices; or

- at negotiated prices.

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

We and the Selling Stockholders may agree to indemnify an underwriter, broker-dealer or agent against certain liabilities related to the sale of our Class A common stock, including liabilities under the Securities Act. The Selling Stockholders have advised us that they have not entered into any agreements, understandings or arrangements with any underwriters or broker-dealers regarding the sale of their Class A common stock. Upon our notification by a Selling Stockholder that any material arrangement has been entered into with an underwriter or broker-dealer for the sale of Class A common stock through a block trade, special offering, exchange distribution, secondary distribution or a purchase by an underwriter or broker-dealer, we will file a supplement to this prospectus, if required, pursuant to Rule 424(b) under the Securities Act, disclosing certain material information, including:

- the name of the Selling Stockholder;
- the number of shares of Class A common stock being offered;
- the terms of the offering;
- the names of the participating underwriters, broker-dealers or agents;
- any discounts, commissions or other compensation paid to underwriters or broker-dealers and any discounts, commissions or concessions allowed or reallowed or paid by any underwriters to dealers;
- the public offering price;
- the estimated net proceeds to us from the sale of the Class A common stock;
- any delayed delivery arrangements; and
- other material terms of the offering.

In addition, upon being notified by a Selling Stockholder that a donee, pledgee, transferee or other successor-in-interest intends to sell Class A common stock, we will, to the extent required, promptly file a supplement to this prospectus to name specifically such person as a Selling Stockholder.

Agents, broker-dealers and underwriters or their affiliates may engage in transactions with, or perform services for, the Selling Stockholders (or their affiliates) in the ordinary course of business. The Selling Stockholders may also use underwriters or other third parties with whom such Selling Stockholders have a material relationship. The Selling Stockholders (or their affiliates) will describe the nature of any such relationship in the applicable prospectus supplement.

There can be no assurances that the Selling Stockholders will sell, nor are the Selling Stockholders required to sell, any or all of the Class A common stock offered under this prospectus.

In connection with the sale of shares of our Class A common stock or interests therein, the Selling Stockholder may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of our Class A common stock in the course of hedging the positions they assume. The Selling Stockholders may also sell shares of our Class A common stock short and deliver these securities to close out their short positions, or loan or pledge shares of our Class A common stock to broker-dealers that in turn may sell these

securities. The Selling Stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities that require the delivery to such broker-dealer or other financial institution of shares of our Class A common stock offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The aggregate proceeds to the Selling Stockholders from the sale of shares of our Class A common stock offered by them will be the purchase price of such shares of our Class A common stock less discounts or commissions, if any. The Selling Stockholders reserve 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 our Class A common stock to be made directly or through agents. We will not receive any of the proceeds from any offering by the Selling Stockholders.

The Selling Stockholders also may in the future resell a portion of our Class A common stock in open market transactions in reliance upon Rule 144 under the Securities Act, provided that they meet the criteria and conform to the requirements of that rule, or pursuant to other available exemptions from the registration requirements of the Securities Act.

The Selling Stockholders and any underwriters, broker-dealers or agents that participate in the sale of shares of our Class A common stock or interests therein may be "underwriters" within the meaning of Section 2(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of shares of our Class A common stock may be underwriting discounts and commissions under the Securities Act. If any Selling Stockholder is an "underwriter" within the meaning of Section 2(11) of the Securities Act, then the Selling Stockholder will be subject to the prospectus delivery requirements of the Securities Act. Underwriters and their controlling persons, dealers and agents may be entitled, under agreements entered into with us and the Selling Stockholders, to indemnification against and contribution toward specific civil liabilities, including liabilities under the Securities Act.

To the extent required, our Class A common stock to be sold, the respective purchase price and public offering price, the names of any agent, dealer or underwriter, and any applicable discounts, commissions, concessions or other compensation 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.

To facilitate the offering of shares of our Class A common stock offered by the Selling Stockholders, certain persons participating in the offering may engage in transactions that stabilize, maintain or otherwise affect the price of our Class A common stock. This may include over-allotments or short sales, which involve the sale by persons participating in the offering of more shares of Class A common stock than were sold to them. In these circumstances, these persons would cover such over-allotments or short positions by making purchases in the open market or by exercising their over-allotment option, if any. In addition, these persons may stabilize or maintain the price of our Class A common stock by bidding for or purchasing shares of Class A common stock in the open market or by imposing penalty bids, whereby selling concessions allowed to dealers participating in the offering may be reclaimed if shares of Class A common stock sold by them are repurchased in connection with stabilization transactions. The effect of these transactions may be to stabilize or maintain the market price of our Class A common stock at a level above that which might otherwise prevail in the open market. These transactions may be discontinued at any time. These transactions may be effected on any exchange on which the securities are traded, in the over-the-counter market or otherwise.

Pursuant to the Shareholder Agreements and the Subscription Agreements, we have agreed to indemnify the applicable Selling stockholders party thereto against certain liabilities that they may incur in connection with the sale of the securities registered hereunder, including liabilities under the Securities Act, and to contribute to payments that the Selling Stockholders may be required to make with respect thereto. In addition, we and the Selling Stockholders may agree to indemnify any underwriter, broker-dealer or agent against certain liabilities related to the selling of the securities, including liabilities arising under the Securities Act.

Pursuant to the Shareholder Agreements, we have agreed to use our commercially reasonable efforts to cause the registration statement of which this prospectus forms a part to remain effective with respect to any securities

registered hereunder pursuant to such agreement until: (i) such securities have been sold, transferred, disposed of or exchanged in accordance with such registration statement; (ii) with respect to a Selling Stockholder party to such agreement, all such securities held by such Selling Stockholder could be sold pursuant to Rule 144 without restriction on volume or manner of sale and without the requirement for us to be in compliance with the public information required under Rule 144; (iii) such securities have been otherwise transferred, new certificates for such securities not bearing a legend restricting further transfer shall have been delivered by us and subsequent public distribution of such securities shall not require registration under the Securities Act or (iv) such securities have been sold to, or through, a broker, dealer or underwriter in a public distribution or other public securities transaction. Under each Subscription Agreement, we have agreed to use commercially reasonable efforts to maintain the continuous effectiveness of the registration statement of which this prospectus forms a part with respect to any securities registered hereunder pursuant to such agreement until: (A) (i) with respect to a Selling Stockholder party to such agreement, such Selling Stockholder ceases to hold any such securities; (ii) the date all such securities held by such Selling Stockholder may be sold without restriction under Rule 144, including without limitation, any volume and manner of sale restrictions which may be applicable to affiliates under Rule 144, and without the requirement for us to be in compliance with the current public information required under Rule 144; (iii) when such securities shall have ceased to be outstanding or three years from the date of effectiveness of such registration statement; or (iv) four years from the date of effectiveness of the registration statement of which this prospectus forms a part; or (B) such shorter period upon which such Selling Stockholder has notified us that such securities have actually been sold. We have agreed to pay all expenses in connection with this offering, other than underwriting fees, discounts, selling commissions, stock transfer taxes and certain legal expenses. The Selling Stockholders will pay, on a pro rata basis, any underwriting fees, discounts, selling commissions, stock transfer taxes and certain legal expenses relating to the offering.

Selling Stockholders may use this prospectus in connection with resales of shares of our Class A common stock. This prospectus and any accompanying prospectus supplement will identify the Selling Stockholders, the terms of our Class A common stock and any material relationships between us and the Selling Stockholders. Selling Stockholders may be deemed to be underwriters under the Securities Act in connection with shares of our Class A common stock they resell and any profits on the sales may be deemed to be underwriting discounts and commissions under the Securities Act. Unless otherwise set forth in a prospectus supplement, the Selling Stockholders will receive all the net proceeds from the resale of shares of our Class A common stock.

A Selling Stockholders that is an entity may elect to make an in-kind distribution of Class A common stock to its members, partners or stockholders pursuant to the registration statement of which this prospectus is a part by delivering a prospectus, as amended or supplemented. To the extent that such transferees are not affiliates of ours, such transferees will receive freely tradable shares of Class A common stock pursuant to the distribution effected through this registration statement.

LEGAL MATTERS

The validity of the securities offered hereby has been passed upon for us by Fenwick & West LLP. Any underwriters or agents will be advised about other issues relating to the offering by counsel to be named in the applicable prospectus supplement.

EXPERTS

The consolidated financial statements of Sema4 Holdings Corp. at December 31, 2021 and 2020, and for each of the three years in the period ended December 31, 2021, appearing in this Prospectus and Registration Statement have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon appearing elsewhere herein, and are included in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

The combined carve-out financial statements of GeneDx, Inc and subsidiary at December 31, 2021 and 2020, and for each of the two years in the period ended December 31, 2021, appearing in this Prospectus and Registration Statement have been audited by Ernst & Young LLP, independent auditors, as set forth in their report thereon appearing elsewhere herein, and are included in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the shares of Class A common stock offered hereby. This prospectus, which constitutes part of the registration statement, does not contain all of the information set forth in the registration statement and the exhibits and schedules thereto. For further information with respect to our company and our Class A common stock, reference is made to the registration statement and the exhibits and any schedules filed therewith. Statements contained in this prospectus as to the contents of any contract or any other document referred to are not necessarily complete, and in each instance, we refer you to the copy of the contract or other document filed as an exhibit to the registration statement. Each of these statements is qualified in all respects by this reference.

You can read our SEC filings, including the registration statement, over the internet at the SEC’s website at www.sec.gov.

We are subject to the information reporting requirements of the Exchange Act and we are required to file reports, proxy statements and other information with the SEC. These reports, proxy statements, and other information are available for inspection and copying at the SEC’s website referred to above. We also maintain a website at www.sema4.com, at which you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. Information contained on or accessible

SEMA4 HOLDINGS CORP.

INDEX TO FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Sema4 Holdings Corp.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Sema4 Holdings Corp. (the Company) as of December 31, 2021 and 2020, the related consolidated statements of operations and comprehensive loss, redeemable convertible preferred stock and stockholders' equity (deficit) and cash flows for each of the three years in the period ended December 31, 2021, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2021, in conformity with U.S. generally accepted accounting principles.

Restatement of 2020 and 2019 Financial Statements

As discussed in Note 2 to the consolidated financial statements, the 2020 and 2019 financial statements have been restated to correct a misstatement.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ ERNST & YOUNG LLP
We have served as the Company's auditor since 2018.

New York, New York

March 14, 2022

Auditor Firm Id: No. 42 Auditor Name: Ernst & Young LLP Auditor Location: New York, New York, United States

Sema4 Holdings Corp.

Consolidated Balance Sheets

(in thousands, except share and per share amounts)

	December 31,	
	2021	2020
Assets		
Current assets:		
Cash and cash equivalents	$ 400,569	$ 108,132
Accounts receivable, net	26,509	32,044
Due from related parties	54	289
Inventory, net	33,456	24,962
Prepaid expenses	19,154	4,557
Other current assets	3,802	4,124
Total current assets	483,544	174,108
Property and equipment, net	62,719	63,110
Restricted cash	900	10,828
Other assets	6,930	3,596
Total assets	$ 554,093	$ 251,642
Liabilities, Redeemable Convertible Preferred Stock and Stockholders' Equity (Deficit)		
Current liabilities:		
Accounts payable	$ 44,693	$ 26,737
Accrued expenses	20,108	11,854
Due to related parties	2,623	1,425
Current portion of capital lease obligations	3,419	3,506
Contract liabilities	473	1,783
Other current liabilities	29,968	28,137
Total current liabilities	101,284	73,442
Long-term debt, net of current portion	11,000	18,971
Stock-based compensation liabilities	—	131,989
Capital lease obligations, net of current portion	18,427	20,778
Other liabilities	3,480	2,074
Warrant liability	21,555	—
Earn-out contingent liability	10,244	—
Total liabilities	165,990	247,254
Commitments and contingencies (Note 9)		
Redeemable convertible preferred stock:		
Series A-1 redeemable convertible preferred stock, $0.00001 par value: 0 and 55,399,943 shares authorized, issued and outstanding at December 31, 2021 and December 31, 2020, respectively; aggregate liquidation preference of $0 and $55,000 at December 31, 2021 and December 31, 2020, respectively	—	51,811

Series A-2 redeemable convertible preferred stock, $0.00001 par value: 0 and 64,718,940 shares authorized at December 31, 2021 and December 31, 2020, respectively; 0 and 49,700,364 shares authorized, issued and outstanding at December 31, 2021 and December 31, 2020, respectively; aggregate liquidation preference of $0 and $49,342 at December 31, 2021 and December 31, 2020, respectively	—	46,480
Series B redeemable convertible preferred stock, $0.00001 par value: 0 and 41,937,960 shares authorized, issued and outstanding at December 31, 2021 and December 31, 2020, respectively; aggregate liquidation preference of $0 and $204,302 at December 31, 2021and December 31, 2020, respectively	—	118,824
Series C redeemable convertible preferred stock, $0.00001 par value: 0 and 24,497,317 shares authorized at December 31, 2021 and December 31, 2020, respectively; 0 and 24,496,946 shares issued and outstanding at December 31, 2021 and December 31, 2020, respectively; aggregate liquidation preference of $0 and $121,397 at December 31, 2021 and December 31, 2020, respectively	—	117,324
Redeemable convertible preferred stock	—	334,439
Stockholders' equity (deficit):		
Preferred Stock, $0.0001 par value: 1,000,000 and 0 shares authorized at December 31, 2021 and December 31, 2020, respectively; 0 shares issued and outstanding at December 31, 2021 and December 31, 2020, respectively	—	—
Class A common stock, $0.0001 par value: 380,000,000 shares authorized, 242,647,604 shares issued and outstanding at December 31, 2021 and $0.00001 par value: 309,584,750 shares authorized, 124 shares issued and outstanding at December 31, 2020	24	—
Class B convertible common stock, $0.00001 par value: 0 and 18,575,085 shares authorized at December 31, 2021 and December 31, 2020, respectively; 0 and 130,557 shares issued and outstanding at December 31, 2021 and December 31, 2020, respectively	—	—
Additional paid-in capital	963,520	—
Accumulated deficit	(575,441)	(330,051)
Total stockholders' equity (deficit)	388,103	(330,051)
Total liabilities, redeemable convertible preferred stock and stockholders' equity (deficit)	$ 554,093	$ 251,642

The accompanying notes are an integral part of these consolidated financial statements.

Sema4 Holdings Corp.

Consolidated Statements of Operations and Comprehensive Loss

(in thousands, except per share and share amounts)

	Year Ended December 31,		
	2021	2020	2019
Revenue		(Restated)[1]	(Restated)[1]
Diagnostic test revenue (including related party revenue of $90, $285 and $0 for the years ended December 31, 2021, 2020, and 2019, respectively)	$ 205,100	$ 175,351	$ 191,667
Other revenue (including related party revenue of $232, $3 and $1,180 for the years ended December 31, 2021, 2020, and 2019, respectively)	7,095	3,971	4,507
Total revenue	212,195	179,322	196,174
Cost of services (including related party expenses of $3,975, $2,189 and $1,859 for the years ended December 31, 2021, 2020, and 2019, respectively)	228,797	175,296	113,389
Gross (loss) profit	(16,602)	4,026	82,785
Research and development	105,162	72,700	34,910
Selling and marketing	112,738	63,183	39,352
General and administrative	205,988	100,742	29,484
Related party expenses	5,659	9,395	9,452
Loss from operations	(446,149)	(241,994)	(30,413)
Other income (expense):			
Change in fair market value of warrant and earn-out contingent liabilities	198,401	—	—
Interest income	79	506	988
Interest expense	(2,835)	(2,474)	(783)
Other income, net	5,114	2,622	504
Total other income, net	200,759	654	709
Loss before income taxes	(245,390)	(241,340)	(29,704)
Income tax provision	—	—	—
Net loss and comprehensive loss	$ (245,390)	$ (241,340)	$ (29,704)
Redeemable convertible preferred stock dividends	—	—	3,039
Net loss attributable to common stockholders	$ (245,390)	$ (241,340)	$ (32,743)
Weighted average shares outstanding, Class A common stock	108,077,439	5,131	124
Basic and diluted net loss per share, Class A common stock	$ (2.27)	$ (47,036)	$ (264,056)

(1) Certain expenses were previously misclassified as cost of services. These expenses are now reported as selling and marketing. This adjustment has no impact on total revenue, loss from operations, net loss and comprehensive loss or net loss per share. Refer to Note 2, “Summary of Significant Accounting Policies” to our consolidated financial statements for further information.

The accompanying notes are an integral part of these consolidated financial statements.

Sema4 Holdings Corp.

Consolidated Statement of Redeemable Convertible Preferred Stock and Stockholders' Equity (Deficit)

(in thousands, except share amounts)

	Redeemable Convertible Preferred Stock		Class A Common Stock		Class B Common Stock				
	Shares	Amount	Shares	Per Value	Shares	Per Value	Additional paid-in capital	Accumulated deficit	Total stockholders' equity (deficit)
Balance at December 31, 2018	102,039,134	$ 64,355	124	$ —	—	$ —	—	$ (55,968)	$ (55,968)
Net loss	—	—	—	—	—	—	—	(29,704)	(29,704)
Preferred Series A dividend	3,061,173	3,039	—	—	—	—	—	(3,039)	(3,039)
Capital contributions	—	30,897	—	—	—	—	—	—	—
Issuance of Preferred Series B, net of issuance costs	41,937,960	$ 118,824	—	—	—	—	—	—	—
Balance at December 31, 2019	147,038,267	$ 217,115	124	$ —	—	$ —	—	$ (88,711)	$ (88,711)
Net loss	—	—	—	—	—	—	—	(241,340)	(241,340)
Preferred Series A dividend	—	—	—	—	130,557	—	—	—	—
Capital contributions	24,496,946	117,324	—	—	—	—	—	—	—
Balance at December 31, 2020	171,535,213	$ 334,439	124	$ —	130,557	$ —		$ (330,051)	$ (330,051)
Net loss	—	—	—	—	—	—		(245,390)	(245,390)
Stock option exercises	—	—	995,526	—	1,253,179	—	1,783	—	1,783
Conversion of Preferred Stock	(171,535,213)	(334,439)	148,543,062	15	—	—	104,517	—	104,532
Conversion of Class B Common Stock	—	—	1,309,320	—	(1,383,736)	—	(744)	—	(744)
Net equity infusion from the Business Combination	—	—	90,333,562	9	—	—	510,742	—	510,751
Stock based compensation modification reclassification	—	—	—	—	—	—	304,837	—	304,837
Stock based compensation expense	—	—	—	—	—	—	42,385	—	42,385
Vested restricted stock units converted to common stock	—	—	1,466,010	—	—	—	—	—	—
Balance at December 31, 2021	—	$ —	**242,647,604**	**$ 24**	—	$ —	**$ 963,520**	**$ (575,441)**	**$ 388,103**

The accompanying notes are an integral part of these consolidated financial statements.

Sema4 Holdings Corp.

Consolidated Statements of Cash Flows

(in thousands)

	Year Ended December 31,		
	2021	2020	2019
Operating activities			
Net loss	$ (245,390)	$ (241,340)	$ (29,704)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization expense	21,807	11,734	6,407
Stock-based compensation expense	219,421	120,231	5,482
Change in fair value of warrant and contingent liabilities	(198,401)	—	—
Provision for excess and obsolete inventory	2,129	—	—
Non-cash lease expense	1,555	2,400	(176)
Loss on extinguishment of debt	301	—	—
Amortization of debt issuance costs	66	—	—
Change in operating assets and liabilities:			
Accounts receivable	5,535	(10,611)	(4,567)
Inventory	(10,624)	(8,979)	(7,970)
Prepaid expenses and other current assets	(14,250)	2,498	(2,526)
Due to/from related parties	1,433	(442)	(919)
Other assets	(1,861)	1,175	(4,395)
Accounts payable and accrued expenses	25,916	14,805	12,847
Contract liabilities	(1,310)	(559)	2,342
Other current liabilities	3,239	15,960	4,451
Net cash used in operating activities	(190,434)	(93,128)	(18,728)
Investing activities			
Purchases of property and equipment	(9,400)	(24,094)	(11,923)
Development of internal-use software assets	(11,386)	(7,880)	(3,533)
Net cash used in investing activities	(20,786)	(31,974)	(15,456)
Financing activities			
Proceeds from issuance of Series B redeemable convertible preferred stock, net of issuance costs	—	—	118,824
Proceeds from issuance of Series C redeemable convertible preferred stock, net of issuance costs	—	117,324	—
Proceeds from Prior PIPE issuance	350,000	—	—
Proceeds from equity infusion from the merger, net of redemptions	442,684	—	—
Legacy Sema4 Shareholder payout	(230,665)	—	—
Payment of transaction costs	(51,760)	—	—
Stock Appreciation Rights payout	(3,795)	—	—
Repayment of long-term debt	(8,741)	—	—
Exercise of stock options	1,271	—	—
Capital contributions from ISMMS	—	—	30,897

Proceeds from long-term debt	—	15,928	—
Long-term debt principal payments	(1,000)	(186)	—
Debt issuance costs	(537)	—	—
Capital lease principal payments	(3,728)	(4,010)	(1,709)
Net cash provided by financing activities	493,729	129,056	148,012
Net increase in cash, cash equivalents and restricted cash	282,509	3,954	113,828
Cash, cash equivalents and restricted cash, at beginning of year	118,960	115,006	1,178
Cash, cash equivalents and restricted cash, at end of year	401,469	118,960	115,006
Supplemental disclosures of cash flow information			
Cash paid for interest	$ 2,751	$ 1,745	$ 305
Cash paid for taxes	$ 349	$ —	$ —
Purchases of property and equipment in accounts payable and accrued expenses	$ 761	$ 447	$ 818
Software development costs in accounts payable and accrued expenses	$ 1,149	$ 1,473	$ 1,040
Non-cash Series A redeemable convertible preferred stock dividends declared and paid	$ —	$ —	$ 3,039
Debt issuance costs incurred but unpaid	$ 1,000	$ —	$ —

The accompanying notes are an integral part of these consolidated financial statements.

Sema4 Holdings Corp.

Notes to Consolidated Financial Statements

1. Organization and Description of Business

Sema4 Holdings Corp., formerly Mount Sinai Genomics Inc., a Delaware corporation ("Legacy Sema4"), as discussed further below, provides genomics-related diagnostic and information services and pursues genomics medical research. Legacy Sema4 utilizes an integrated portfolio of laboratory processes, software tools and informatics capabilities to process DNA-containing samples, analyze information about patient-specific genetic variation and generate test reports for clinicians and their patients. Legacy Sema4 provides a variety of genetic diagnostic tests and information with a focus on reproductive health, including pediatric, oncology and other conditions. In 2020, the Legacy Sema4 began to provide diagnostic testing services in response to the outbreak of the coronavirus ("COVID-19") pandemic. On December 15, 2021, it was announced that COVID-19 testing services would be discontinued by March 31, 2022. Legacy Sema4 primarily serves healthcare professionals who work with their patients and bills third-party payors across the United States, with a substantial portion of its diagnostic testing volume occurring in New York, California, Florida, Connecticut and New Jersey.

On July 22, 2021 (the "Closing Date"), CM Life Sciences, Inc. ("CMLS") completed the acquisition of Legacy Sema4, pursuant to that certain Agreement and Plan of Merger (as amended, the "Merger Agreement"), dated February 9, 2021. On the Closing Date, S-IV Sub, Inc. ("Merger Sub") merged with and into the Legacy Sema4, with Legacy Sema4 surviving the merger as a wholly-owned subsidiary of CMLS (the "Merger" and, together with the other transactions contemplated by the Merger Agreement, the "Business Combination"). In connection with the consummation of the Business Combination, CMLS changed its name to "Sema4 Holdings Corp." ("Sema4 Holdings") and Legacy Sema4 changed its name to "Sema4 OpCo, Inc." All equity securities of Legacy Sema4 were converted into the right to receive the applicable portion of the merger consideration.

The Merger was accounted for as a reverse recapitalization with Legacy Sema4 as the accounting acquirer and CMLS as the acquired company for accounting purposes. The shares and net loss per common share, prior to the Merger, have been retroactively restated as shares reflecting the exchange ratio established in the Merger (1 share of Legacy Sema4 Class A common stock for 123.8339 shares of Sema4 Holdings Class A common stock) (the "Conversion Ratio").

Prior to the Merger, shares of CMLS Class A common stock, CMLS's public warrants, and CMLS's public units were traded on the Nasdaq Capital Market under the ticker symbols "CMLF", "CMFLW", and "CMLFU" respectively. On July 23, 2021, shares of Sema4 Holdings Class A common stock and Sema4 Holdings' public warrants began trading on the Nasdaq Global Select Market (the "Nasdaq") under the ticker symbols "SMFR" and "SMFRW," respectively. See Note 3, "Business Combination," for additional details.

Unless otherwise stated herein or unless the context otherwise requires, references in these notes to the "Company," or "Sema4" refer to (i) Legacy Sema4 prior to the consummation of the Business Combination; and (ii) Sema4 Holdings and its subsidiary following the consummation of the Business Combination.

2. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP"). The Company's historical financial information includes costs of certain services historically provided by Icahn School of Medicine at Mount Sinai ("ISMMS") pursuant to the Transition Services Agreement ("TSA") and service.

Restatement – 2020 and 2019 annual statements of operations and comprehensive loss

The Company classifies expenses incurred that directly relate to the delivery of revenue as cost of services in its consolidated statements of operations and comprehensive loss.

As a result of expanded accounting resources, the Company identified the misclassification of certain expenses related to the genetic counseling department reported in cost of services that should have been reported in selling and marketing in the prior period financial statements. The Company quantified the amount and determined it necessary to restate its previously reported balances as follows (in thousands):

	December 31, 2020			December 31, 2019		
	As reported	Misclassification	Restated	As reported	Misclassification	Restated
Total revenue	179,322	—	**179,322**	196,174	—	**196,174**
Cost of services	184,648	(9,352)	**175,296**	119,623	(6,234)	**113,389**
Gross (loss) profit	(5,326)	9,352	**4,026**	76,551	6,234	**82,785**
Research and development	72,700	—	**72,700**	34,910	—	**34,910**
Selling and marketing	53,831	9,352	**63,183**	33,118	6,234	**39,352**
General and administrative	100,742	—	**100,742**	29,484	—	**29,484**
Related party expenses	9,395	—	**9,395**	9,452	—	**9,452**
Loss from operations	(241,994)	—	**(241,994)**	(30,413)	—	**(30,413)**
Total other income, net	654	—	**654**	709	—	**709**
Net loss and comprehensive loss	(241,340)	—	**(241,340)**	(29,704)	—	**(29,704)**

This misclassification did not have any impact to the Company's net loss or net loss per share as reported in the statements of operations and comprehensive loss in any interim or annual periods. Included in the misclassification amount is stock-based compensation expense of $1 million for 2020. There was no impact of misclassification for 2019 related to stock-based compensation expense.

Restatement – 2021 and 2020 interim financial statements (unaudited)

Additionally, the Company has identified quarterly out of period adjustments generally related to recognition of cost of services in the quarterly periods ended March 31, 2021, June 30, 2021 and September 30, 2021. The impact

of the misclassification and quarterly out of period adjustments identified on each of the three months periods in the year ended December 31, 2021 and 2020 are disclosed as follows (in thousands):

2021 interim statements of operations and comprehensive loss (in thousands)

	First Quarter				Second Quarter			
	As reported	Misclass-ification	Adjustment	Restated	As reported	Misclass-ification	Adjustment	Restated
Total revenue	64,351	—	(150)	**64,201**	46,865	—	150	**47,015**
Cost of services	71,812	(3,837)	549	**68,524**	49,631	(2,287)	835	**48,179**
Gross (loss) profit	(7,461)	3,837	(699)	**(4,323)**	(2,766)	2,287	(685)	**(1,164)**
Research and development	53,131	—	2	**53,133**	11,954	—	(2)	**11,952**
Selling and marketing	31,569	3,837	(40)	**35,366**	16,247	2,287	40	**18,574**
General and administrative	101,917	—	121	**102,038**	12,794	—	76	**12,870**
Related party expenses	1,797	—	—	**1,797**	888	—	—	**888**
Loss from operations	(195,875)	—	(782)	**(196,657)**	(44,649)	—	(799)	**(45,448)**
Total other income, net	4,882	—	—	**4,882**	(713)	—	—	**(713)**
Net (loss) income and comprehensive loss	(190,993)	—	(782)	**(191,775)**	(45,362)	—	(799)	**(46,161)**

	Third Quarter				Fourth Quarter
	As reported	Misclass-ification	Adjustment	Restated	As reported
Total revenue	43,178	—	—	**43,178**	57,801
Cost of services	58,752	(6,031)	(1,234)	**51,487**	60,607
Gross (loss) profit	(15,574)	6,031	1,234	**(8,309)**	(2,806)
Research and development	17,831	—	—	**17,831**	22,246
Selling and marketing	22,121	6,031	—	**28,152**	30,646
General and administrative	33,230	—	(105)	**33,125**	57,955
Related party expenses	847	—	—	**847**	2,127
Loss from operations	(89,603)	—	1,339	**(88,264)**	(115,780)
Total other income, net	120,995	—	—	**120,995**	75,595
Net (loss) income and comprehensive loss	31,392	—	1,339	**32,731**	(40,185)

2020 interim statements of operations and comprehensive loss (in thousands)

	First Quarter			Second Quarter			Third Quarter			Fourth Quarter		
	As reported	Misclass-ification	Restated	As reported	Misclass-ification	Restated	As reported	Misclass-ification	Restated	As reported	Misclass-ification	Restated
Total revenue	46,655	—	46,655	30,102		30,102	38,608		38,608	63,957		63,957
Cost of services	39,239	(2,101)	37,138	35,985	(1,480)	34,505	36,530	(2,508)	34,022	72,894	(3,263)	69,631
Gross (loss) profit	7,416	2,101	9,517	(5,883)	1,480	(4,403)	2,078	2,508	4,586	(8,937)	3,263	(5,674)
Research and development	13,096	—	13,096	9,361	—	9,361	19,083	—	19,083	31,160	—	31,160
Selling and marketing	11,733	2,101	13,834	8,686	1,480	10,166	12,735	2,508	15,243	20,677	3,263	23,940
General and administrative	7,164	—	7,164	8,121	—	8,121	24,342	—	24,342	61,115	—	61,115
Related party expenses	2,195	—	2,195	2,111	—	2,111	1,933	—	1,933	3,156	—	3,156
Loss from operations	(26,772)	—	(26,772)	(34,162)	—	(34,162)	(56,015)	—	(56,015)	(125,045)	—	(125,045)
Total other income, net	(218)	—	(218)	2,110	—	2,110	(600)	—	(600)	(638)	—	(638)
Net loss and comprehensive loss	(26,990)	—	(26,990)	(32,052)	—	(32,052)	(56,615)	—	(56,615)	(125,683)	—	(125,683)

The adjustments also affected certain current asset and liability accounts previously reported in the condensed balance sheets as of March 31, 2021 and June 30, 2021 and condensed consolidated balance sheets as of September 30, 2021 as follows (in thousands):

	March 31, 2021			June 30, 2021			September 30, 2021		
	As reported	Adjust-ment	Restated	As reported	Adjust-ment	Restated	As reported	Adjust-ment	Restated
Assets									
Current assets:									
Cash and cash equivalents	58,652	—	**58,652**	26,501	—	**26,501**	461,276	—	**461,276**
Accounts receivable	33,490	(150)	**33,340**	24,568	—	**24,568**	21,257	—	**21,257**
Due from related parties	349	—	**349**	437	—	**437**	413	—	**413**
Inventory	32,969	—	**32,969**	29,128	—	**29,128**	31,174	—	**31,174**
Prepaid expenses and other current assets	15,070	(139)	**14,931**	18,378	—	**18,378**	24,391	—	**24,391**
Total current assets	140,530	(289)	**140,241**	99,012	—	**99,012**	538,511	—	**538,511**
Property and equipment, net	64,632	—	**64,632**	62,097	—	**62,097**	60,333	—	**60,333**
Restricted cash	10,828	—	**10,828**	10,828	—	**10,828**	900	—	**900**
Other assets	3,596	—	**3,596**	3,596	—	**3,596**	3,613	—	**3,613**
Total assets	219,586	(289)	**219,297**	175,533	—	**175,533**	603,357	—	**603,357**
Liabilities, Redeemable Convertible Preferred Stock and Stockholders' Equity (Deficit)									
Current liabilities:									
Accounts payable and accrued expenses	41,609	493	**42,102**	43,650	1,581	**45,231**	43,079	242	**43,321**
Due to related parties	797	—	**797**	1,278	—	**1,278**	1,425	—	**1,425**
Current contract liabilities	2,810	—	**2,810**	1,341	—	**1,341**	493	—	**493**
Other current liabilities	22,991	—	**22,991**	24,764	—	**24,764**	26,369	—	**26,369**
Total current liabilities	68,207	493	**68,700**	71,033	1,581	**72,614**	71,366	242	**71,608**
Long-term debt, net of current portion	18,502	—	**18,502**	18,028	—	**18,028**	11,000	—	**11,000**
Stock-based compensation liabilities	296,952	—	**296,952**	295,049	—	**295,049**	—	—	**—**
Warrant liability	—	—	**—**	—	—	**—**	46,629	—	**46,629**
Earn-out contingent liability	—	—	**—**	—	—	**—**	61,400	—	**61,400**
Other liabilities	22,530	—	**22,530**	21,907	—	**21,907**	21,699	—	**21,699**
Total liabilities	406,191	493	**406,684**	406,017	1,581	**407,598**	212,094	242	**212,336**
Redeemable convertible preferred stock:									
Series A-1 redeemable convertible preferred stock	51,811	—	**51,811**	51,811	—	**51,811**	—	—	**—**
Series A-2 redeemable convertible preferred stock	46,480	—	**46,480**	46,480	—	**46,480**	—	—	**—**
Series B redeemable convertible preferred stock	118,824	—	**118,824**	118,824	—	**118,824**	—	—	**—**
Series C redeemable convertible preferred stock	117,324	—	**117,324**	117,324	—	**117,324**	—	—	**—**
Redeemable convertible preferred stock	334,439	—	**334,439**	334,439	—	**334,439**	—	—	**—**
Stockholders' equity (deficit):									
Preferred Stock	—	—	**—**	—	—	**—**	—	—	**—**
Class A common stock	—	—	**—**	—	—	**—**	24	—	**24**
Class B convertible common stock	—	—	**—**	—	—	**—**	—	—	**—**
Additional paid-in capital	—	—	**—**	1,483	—	**1,483**	926,253	—	**926,253**
Accumulated deficit	(521,044)	(782)	**(521,826)**	(566,406)	(1,581)	**(567,987)**	(535,014)	(242)	**(535,256)**
Total stockholders' (deficit) equity	(521,044)	(782)	**(521,826)**	(564,923)	(1,581)	**(566,504)**	391,263	(242)	**391,021**
Total liabilities, redeemable convertible preferred stock and stockholders' equity	219,586	(289)	**219,297**	175,533	—	**175,533**	603,357	—	**603,357**

The adjustments did not have any impact on the net cash used in operating or investing activities, or net cash used or provided by financing activities previously reported in the condensed statements of cash flows. However, certain line items within the operating section of the condensed statements of cash flows would change by immaterial amounts.

Use of Estimates

The preparation of consolidated financial statements requires management to make certain estimates, judgments and assumptions that affect the reported amounts of assets and liabilities and the related disclosures at the date of the consolidated financial statements as well as the reported amounts of revenues and expenses during the periods presented. The Company bases these estimates on current facts, historical and anticipated results, trends and various other assumptions that it believes are reasonable in the circumstances, including assumptions as to future events. These estimates include, but are not limited to, the transaction price for certain contracts with customers, the capitalization of software costs and the valuation of stock-based awards, inventory, earn-out contingent liability and earn-out RSUs. Actual results could differ materially from those estimates, judgments and assumptions.

Concentration of Credit Risk and Other Risks and Uncertainties

Financial instruments that potentially subject the Company to concentrations of credit risk consist primarily of cash and cash equivalents and accounts receivable.

The Company's cash and cash equivalents are deposited with high-quality financial institutions. The Company has balances in financial institutions that exceed federal depository insurance limits. Management believes these financial institutions are financially sound and, accordingly, that minimal credit risk exists. The Company has not experienced any losses on its deposits of cash and cash equivalents.

The Company assesses both the customer and, if applicable, the third party payor that reimburses the Company on the customer's behalf when evaluating concentration of credit risk. Significant customers and payors are those that represent more than 10% of the Company's total annual revenues or accounts receivable balance at each respective balance sheet date. The significant concentrations of accounts receivable as of December 31, 2021 and 2020 were primarily from large managed care insurance companies and a reference laboratory. There was no individual customer that accounted for 10% or more of revenue or accounts receivable for any of the years presented. The Company does not require collateral as a means to mitigate customer credit risk.

For each significant payor, revenue as a percentage of total revenues and accounts receivable as a percentage of total accounts receivable are as follows:

	Revenue			Accounts Receivable	
	Year Ended December 31,			As of December 31,	
	2021	2020	2019	2021	2020
Payor A	22%	27%	36%	15%	10%
Payor B	13%	14%	*	*	*
Payor C	*	*	*	*	20%
Payor D	*	*	24%	15%	*

* less than 10%

The Company is subject to a concentration of risk from a limited number of suppliers for certain reagents and laboratory supplies. One supplier accounted for approximately 7%, 11% and 15% for the years ended December 31, 2021, 2020 and 2019, respectively. Another supplier accounted for approximately 11%, 10% and 12% for the years ended December 31, 2021, 2020 and 2019, respectively. This risk is managed by maintaining a target quantity of surplus stock.

Impact of COVID-19

In March 2020, the World Health Organization declared the COVID-19 outbreak a global pandemic. The ongoing COVID-19 pandemic has had, and continues to have, an extensive impact on global health and economic conditions. Many jurisdictions, including those in which the Company has current operations, have implemented measures to combat the spread and resurgence of COVID-19, such as travel restrictions and shelter in place orders. In addition, the healthcare sector generally experienced a decline in discretionary care services at the onset of the pandemic.

Beginning in April 2020, the Company's diagnostic test volumes decreased significantly as compared to the prior year as a result of the COVID-19 pandemic and the related limitations and priorities across the healthcare system. In response, beginning in May 2020, the Company entered into several service agreements with state governments and healthcare institutions to provide testing for the presence of COVID-19 variants. While test volumes have since improved, the Company continues to experience changes in the mix of tests due to the impact of the COVID-19 pandemic. COVID-19 could continue to have a material impact on the Company's results of operations, cash flows and financial condition for the foreseeable future.

In March 2020, the Coronavirus Aid, Relief and Economic Security Act ("CARES Act") was signed into law which was a stimulus bill that, among other things, provided assistance to qualifying businesses and individuals and included funding for the healthcare system. During 2020, as part of the stimulus provided by the CARES Act, the Company received $5.4 million, comprised of $2.6 million received under the Provider Relief Fund ("PRF") distribution and $2.8 million received under the Employee Retention Credit ("ERC") distribution which was recorded in other current liabilities and reflected in this balance as of December 31, 2020 and December 31, 2021.

During 2021, the Company received an additional $5.6 million during 2021 under the PRF distribution, which was recognized in other income (expense), net in the consolidated statements of operations and comprehensive loss.

Additionally, under the CARES Act, the Company deferred payment of U.S. social security taxes in 2020 . As a result, $3.8 million of employer payroll tax payments were deferred as of December 31, 2020 with $1.9 million paid in December 2021 and the remaining $1.9 million payment will be made in December 2022. As of December 31, 2021, the remaining payable is recorded in other current liabilities.

On December 15, 2021, it was announced that COVID-19 testing services would be discontinued by March 31, 2022.

Cash, Cash Equivalents and Restricted Cash

The Company considers all highly liquid investments with original maturities of three months or less from the date of purchase to be cash equivalents. Cash equivalents consist of amounts invested in money market funds. Carrying values of cash equivalents approximate fair value due to the short-term nature of these instruments.

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported on the balance sheets that sum to the total of the same amounts shown on the statements of cash flows (in thousands):

	As of December 31,	
	2021	2020
Cash and cash equivalents	$ 400,569	$ 108,132
Restricted cash	900	10,828
Total	$ 401,469	$ 118,960

Restricted cash as of December 31, 2021 consists of money market deposit accounts that secure an irrevocable standby letter of credit that serve as collateral for security deposits for operating leases (see Note 9).

Accounts Receivable

Accounts receivable consists of amounts due from customers and third party payors for services performed and reflect the consideration to which the Company expects to be entitled in exchange for providing those services. Accounts receivable are estimated and recorded in the period the related revenue is recorded. During the years ended December 31, 2021 and 2020, the Company did not record provisions for doubtful accounts. The Company did not write off any accounts receivable balances for the year ended December 31, 2021 and $0.2 million of accounts receivable was written off for the year ended December 31, 2020.

Inventory, net

Inventory, net which primarily consists of testing supplies and reagents, is capitalized when purchased and expensed when used in performing services. Inventory is stated at the lower of cost or net realizable value. Cost is determined using actual costs on a first-in, first-out basis. The Company periodically performs obsolescence assessments and writes off any inventory that is no longer usable. Any write-down of inventory to net realizable value creates a new cost basis. The Company recorded a reserve for excess and obsolete inventory of $2.1 million as of December 31, 2021. There was no reserve recorded as of December 31, 2020.

Property and Equipment, net

Property and equipment, net are stated at cost less accumulated depreciation and amortization. Equipment includes assets under capital lease. Improvements are capitalized, while maintenance and repairs are expensed as incurred. When assets are retired or otherwise disposed of, the cost and accumulated depreciation and amortization are removed from the balance sheets and any resulting gain or loss is reflected in the statements of operations and comprehensive loss in the period realized.

Capital leases and leasehold improvements are amortized straight-line over the shorter of the term of the lease or the estimated useful life. All other property and equipment assets are depreciated using the straight-line method over the estimated useful life of the asset, which ranges from three to five years.

The Company reviews the recoverability of its long-lived assets when events or changes in circumstances occur that indicate that the carrying value of the asset or asset group may not be recoverable. An impairment loss is recognized when the total estimated future undiscounted cash flows expected to result from the use of the asset and its eventual disposition are less than its carrying amount. Impairment, if any, is assessed using discounted cash flows or other appropriate measures of fair value. There were no long-lived asset impairment losses recorded for any periods presented.

Capitalized Software

We capitalize certain costs incurred related to the development of our software applications for internal use during the application development state. If a project constitutes an enhancement to existing software, we assess whether the enhancement creates additional functionality to the software, thus qualifying the work incurred for capitalization. Costs incurred prior to meeting these criteria together with costs incurred for training and maintenance are expensed as incurred. Once the project is available for general release, capitalization ceases and we estimate the useful life of the asset and begin amortization.

Capitalized software costs are amortized using the straight-line method over an estimated useful life of three years. Capitalized software is reviewed for impairment whenever events or changes in circumstances may indicate that the carrying amount of an asset may not be recoverable

Fair Value Measurements

Financial assets and liabilities are recorded at fair value. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The Company determines the fair value of its financial instruments based on assumptions that market participants would use in pricing an asset or liability in the principal or most advantageous market. The following

hierarchy lists three levels of fair value based on the extent to which inputs used in measuring fair value are observable in the market:

Level 1: Observable inputs such as quoted prices (unadjusted) in active markets that are accessible at the measurement date for identical assets or liabilities.

Level 2: Observable inputs such as quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active or model-derived valuations whose significant inputs are observable.

Level 3: Unobservable inputs that are significant to the measurement of fair value but are supported by little to no market data.

The Company's financial assets and liabilities consist of cash and cash equivalents, restricted cash, accounts receivable, accounts payable, accrued liabilities, capital leases and long-term debt. The Company's cash and cash equivalents, restricted cash, accounts receivable, accounts payable and accrued liabilities approximate their fair value due to the relatively short-term nature of these accounts.

The Company's capital leases are classified within level 1 of the fair value hierarchy because such agreements bear interest at rates for instruments with similar characteristics; accordingly, the carrying value of these liabilities approximate their fair values.

The Company's loan from the Connecticut Department of Economic and Community Development is classified within level 2 of the fair value hierarchy. As of December 31, 2021, the long-term debt is recorded at its carrying value of $11.0 million in the consolidated balance sheet. The fair value is $10.2 million, which is estimated based on discounted cash flows using the yields of similar debt instruments of other companies with similar credit profiles.

Warrant Liability

As of the consummation of the Merger in July 2021, there were 21,995,000 warrants to purchase shares of Class A common stock outstanding, including 14,758,333 public warrants and 7,236,667 private placement warrants. As of December 31, 2021, there were 21,994,972 warrants to purchase shares of Class A common stock outstanding, including 14,758,305 public warrants and 7,236,667 private placement warrants outstanding. Each warrant expires five years after the Business Combination or earlier upon redemption or liquidation, and entitles the holder to purchase one share of Class A common stock at an exercise price of $11.50 per share, subject to adjustment, at any time commencing on September 4, 2021.

The Company may redeem the outstanding public warrants if the price per share of the Class A common stock equals or exceeds $18.00 as described below:

- in whole and not in part;
- at a price of $0.01 per public warrant;
- upon not less than 30 days' prior written notice of redemption to each warrant holder; and
- if, and only if, the closing price of the Class A common stock equals or exceeds $18.00 per share (as adjusted) for any 20 trading days within a 30-trading day period ending three trading days before sending the notice of redemption to warrant holders.

The Company may redeem the outstanding public warrants if the price per share of the common stock equals or exceeds $10.00 as described below:

- in whole and not in part;
- at $0.10 per warrant upon a minimum of 30 days' prior written notice of redemption provided that holders will be able to exercise their warrants on a cashless basis prior to redemption and receive that number of shares based on the redemption date and the fair market value of the common stock;

- if, and only if, the closing price of the Class A common stock equals or exceeds $10.00 per share (as adjusted) for any 20 trading days within the 30-trading day period ending three trading days before the Company sends the notice of redemption to the warrant holders; and
- if the closing price of the common stock for any 20 trading days within a 30-trading day period ending three trading days before the Company sends notice of redemption to the warrant holders is less than $18.00 per share (as adjusted), the private placement warrants must also be concurrently called for redemption on the same terms as the outstanding public warrants, as described above.

The private placement warrants were issued to CMLS Holdings, LLC, Mr. Munib Islam, Dr. Emily Leproust and Mr. Nat Turner, and are identical to the public warrants underlying the units sold in the initial public offering, except that (1) the private placement warrants and the common stock issuable upon the exercise of the private placement warrants would not be transferable, assignable or salable until 30 days after the completion of a Business Combination, subject to certain limited exceptions, (2) the private placement warrants are exercisable on a cashless basis, (3) the private placement warrants are non-redeemable (except as described above, upon a redemption of warrants when the price per share of Class A common stock equals or exceeds $10.00) so long as they are held by the initial purchasers or their permitted transferees, and (4) the holders of the private placement warrants and the common stock issuable upon the exercise of the private placement warrants have certain registration rights. If the private placement warrants are held by someone other than the initial purchasers or their permitted transferees, the private placement warrants will be redeemable by the Company and exercisable by such holders on the same basis as the public warrants.

The Company accounts for warrants as liability-classified instruments based on an assessment of the warrant terms and applicable authoritative guidance in accordance with ASC 480-Distinguishing Liabilities from Equity (“ASC 480”) and ASC 815-Derivatives and Hedging (“ASC 815”). The assessment considers whether the warrants are freestanding financial instruments pursuant to ASC 480, whether the warrants meet the definition of a liability pursuant to ASC 480, and whether the warrants meet all of the requirements for equity classification under ASC 815. This assessment is conducted at the time of warrant issuance and as of each subsequent quarterly period end date while the warrants are outstanding.

Earn-out contingent liability

In connection with the Merger, all Legacy Sema4 stockholders and option holders at that time became entitled to a pro rata share of 19,021,576 earn-out shares and earn-out Restricted Stock Units (“RSUs”). Based on an assessment of the earn-out shares for the Legacy Sema4 stockholders, the Company considered ASC 480 and ASC 815 and accounted for the earn-out shares as a liability. The Company subsequently measures the fair value of the liability at each reporting period and reports the changes in fair value recorded as a component of other income (expense), net in the consolidated statements of operations and comprehensive loss.

The Company determined the fair value of the earn-out shares issued to the Legacy Sema4 stockholders as of December 31, 2021 was $10.2 million.

As for the earn-out RSUs for the Legacy Sema4 option holders, a total of 2.7 million RSUs were granted on December 9, 2021. The vesting of such arrangement is conditioned on the satisfaction of both a service requirement and on the satisfaction of a market-based requirement. The market-based requirement would be achieved if the Company’s stock price is greater than or equal to $13 (Triggering Event I), $15 (Triggering Event II) and $18 (Triggering Event III) during the applicable performance period, based on the volume-weighted average price for a period of at least 20 days out of 30 consecutive trading days. Therefore, the Company accounts for this arrangement in accordance with ASC 718- Compensation — Stock Compensation (“ASC 718”) and stock-compensation expense is recognized over the longer of the expected achievement period for the market-based requirement and the service requirement. The Company recorded $0.2 million in relation to the earn-out RSU for the year ended December 31, 2021. In the event that any earn-out RSUs that are forfeited as a result of a failure to achieve the service requirement, the underlying shares will be reallocated on an annual basis to the Legacy Sema4 stockholders and to the Legacy Sema4 option holders who remain employed as of the date of such reallocation. The Company accounts for the re-allocations to Legacy Sema4 option holders as new grants.

The estimated fair value of the earn-out is determined using a Monte Carlo valuation analysis.

Stock-based Compensation

The Company measures stock-based compensation at the grant date based on the fair value of the award and recognizes stock-based compensation expense over the requisite service period for each separate vesting portion of the award on a straight-line basis. Determining the fair value of stock option awards requires judgment, including estimating stock price volatility and expected option life. Restricted stock awards are valued based on the fair value of the stock on the grant date. The Company uses the Black-Scholes option-pricing model to estimate the fair value of its stock option awards.

The Company issues new shares upon share option exercise and vesting of a restricted share unit. Forfeitures of stock-based compensation are recognized as they occur.

Income Taxes

Income taxes are accounted for under the asset and liability method. The provision for income taxes represents income taxes paid or payable for the current year plus the change in deferred taxes during the year. Current and deferred income taxes are measured based on the tax laws that are enacted as of the balance sheet date of the relevant reporting period. Deferred tax assets and liabilities are recognized for the expected future tax consequences of temporary differences between the carrying amounts of assets and liabilities and their respective tax bases using tax rates in effect for the year in which the differences are expected to reverse. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in the statements of operations and comprehensive loss in the period when the change is enacted. A valuation allowance is established when it is more likely than not that some or all of the deferred tax assets will not be realized. Based on the Company's historical operating losses, the Company has recorded a valuation allowance to reduce deferred tax assets to the amount that is more likely than not to be realized.

The Company recognizes the effect of a tax position when it is more likely than not, based on technical merits, that the position will be sustained upon examination by the appropriate taxing authorities. The amount of tax benefit recognized for an uncertain tax position is the largest amount of benefit with a greater than 50 percent likelihood of being realized. Unrecognized tax benefits are included within other liabilities if recognized and are charged to earnings in the period that such determination is made. The Company records interest and penalties related to tax uncertainties, if applicable, as a component of income tax expense.

Leases

The Company categorizes lease agreements at their inception as either operating or capital leases.

For operating leases, the Company recognizes related rent expense on a straight-line basis over the term of the applicable lease agreement. Certain lease agreements contain rent holidays, scheduled rent increases and lease incentives. Rent holidays and scheduled rent increases are included in the determination of rent expense to be recorded over the lease term. Any lease incentives reduce rent expense the Company records on a straight-line basis over the term of the lease. The Company recognizes rent expense beginning on the date it obtains the legal right to use and control the leased space.

For capital leases, the Company records a leased asset with a corresponding liability. Payments are recorded as reductions to the liability with an interest charge recorded based on the remaining liability.

Revenue Recognition

The Company adopted Accounting Standards Codification ("ASC") Topic 606 ("ASC 606"), *Revenue from Contracts with Customers*, on January 1, 2019 using the modified retrospective method applied to contracts which were not completed as of the adoption date. The Company recognizes revenue when control of the promised goods or services is transferred to the customer in an amount that reflects the consideration which the Company expects to be entitled to in exchange for those goods or services. If any changes in customer credit issues are identified which were not assessed at the date of service, provisions for doubtful accounts are recognized and recorded.

Diagnostic test revenue

The Company's diagnostic test revenue contracts typically consist of a single performance obligation to deliver diagnostic testing services to the ordering facility or patient and therefore allocation of the contract transaction price is not applicable. Control over diagnostic testing services is generally transferred at a point in time when the customer obtains control of the promised service which is upon delivery of the test.

Diagnostic test revenues consist primarily of services reimbursed by third-party insurance payors. Third-party insurance payors include managed care health plans and commercial insurance companies, including plans offered through the health insurance exchanges, and employers. In arrangements with third-party insurance payors, the transaction price is stated within the contract, however, the Company accepts payments from third-party payors that are less than the contractually stated price and is therefore variable consideration and the transaction price is estimated.

When determining the transaction price, the Company uses a portfolio approach as a practical expedient to account for categories of diagnostic test contracts as collective groups rather than on an individual contract basis. The portfolio consists of major payor classes based on third-party payors. Based on historical collection trends and other analyses, the Company believes that revenue recognized by utilizing the portfolio approach approximates the revenue that would have been recognized if an individual contract approach was used.

Estimates of allowances for third-party insurance payors that impact the estimated transaction price are based upon the pricing and payment terms specified in the related contractual agreements. Contractual pricing and payment terms in third-party insurance agreements are generally based upon predetermined rates per diagnosis, per diem rates or discounted fee-for-service rates. In addition, for third-party payors in general, the estimated transaction price is impacted by factors such as historical collection experience, contractual provisions and insurance reimbursement policies, payor mix, and other relevant information for applicable payor portfolios.

For institutional clients, the customer is the institution. The Company determines the transaction price associated with services rendered in accordance with the contractual rates established with each customer.

Payment terms and conditions vary by contract and customer, however standard payment terms are generally less than 60 days from the invoice date. In instances where the timing of the Company's revenue recognition differs from the timing of its invoicing, the Company does not assess whether a contract has a significant financing component if the expectation at contract inception is such that the period between payment by the customer and the transfer of the promised services to the customer will be one year or less.

Other revenue

The Company enters into both short-term and long-term project-based collaboration and service agreements with customers. Certain of these contracts include the transfer of a license to the Company's intellectual property or participation by the Company on joint steering committees with the customer, which was considered to be immaterial in the context of the contract. The Company concludes that the goods and services transferred to our customers pursuant to these agreements generally comprise a single performance obligation on the basis that such goods and services are not distinct within the context of the contract. This is because the goods and services are highly interdependent and interrelated such that the Company would not be able to fulfill its underlying promise to our customers by transferring each good or service independently.

The consideration generally includes non-refundable upfront payments and variable payments based upon the achievement of certain milestones or fixed monthly payments during the contract term. Non-refundable upfront payments received prior to the Company performing performance obligation are recorded as a contract liability upon receipt. Milestone payments are included in the transaction price only when it is probable that doing so will not result in a significant reversal of cumulative revenue recognized when the uncertainty associated with the milestone is subsequently resolved. For longer-term contracts, the Company does not account for a significant financing component since a substantial amount of the consideration promised by the customer is variable and the amount or timing of that consideration varies on the basis of a future event that is not substantially within the control of either party.

The Company satisfies its performance obligation generally over time if the customer simultaneously receives and consumes the benefits provided by the Company's services as the Company performs those services. The Company recognizes revenue over time using an input measure based on costs incurred on the basis that this measure best reflects the pattern of transfer of control of the services to the customer. In some contracts, the Company subcontracts certain services to other parties for which the Company is ultimately responsible. Costs incurred for such subcontracted services are included in the Company's measure of progress for satisfying its performance obligation and are recorded in cost of services in the consolidated statements of operations and comprehensive loss. Changes in the total estimated costs to be incurred in measuring the Company's progress toward satisfying its performance obligation may result in adjustments to cumulative revenue recognized at the time the change in estimate occurs.

Segment Information

The Company operates and manages its business as one reportable operating segment based on how the Chief Executive Officer, who is the Company's chief operating decision maker ("CODM"), assesses performance and allocates resources across the business.

Emerging Growth Company

The Company is an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012. As such, the Company is eligible for exemptions from various reporting requirements applicable to other public companies that are not emerging growth companies, including reduced reporting and extended transition periods to comply with new or revised accounting standards for public business entities. The Company has elected to avail itself of this exemption and, therefore, will not be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

Recently Adopted Accounting Pronouncements

Effective January 1, 2021, the Company adopted Accounting Standards Update ("ASU") 2018-18, Collaborative Arrangements: Clarifying the Interaction between Topic 808 and Topic 606 ("ASU 2018-18"), which clarifies that certain transactions between participants in a collaborative arrangement should be accounted for under ASC Topic 606 ("ASC 606"), Revenue from Contracts with Customers, when the counterparty is a customer. In addition, ASC Topic 808 ("ASC 808"), Collaborative Arrangements precludes an entity from presenting consideration from a transaction in a collaborative arrangement as revenue from contracts with customers if the counterparty is not a customer for that transaction. Adoption of ASU 2018-18 did not have an impact on the Company's consolidated financial statements as the Company is not currently a participant in any such collaborative arrangements.

The Company adopted ASU 2018-15, Intangibles – Goodwill and Other – Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract ("ASU 2018-15") for the annual period ended December 31, 2021. ASU 2018-15 aligns the accounting for costs incurred to implement a cloud computing arrangement that is a service arrangement with the guidance on capitalizing costs associated with developing or obtaining internal-use software. The Company adopted and applied this update prospectively to all implementation costs incurred during the year ended December 31, 2021, $2.3 million of implementation costs are capitalized and recorded in other current and non-current assets. The Company capitalizes certain costs incurred during the application development stage and all costs incurred during the preliminary project and post-implementation stages are expensed as incurred. Amortization begins when the cloud computing arrangement is ready for its intended use and is calculated on a straight-line basis over the fixed noncancellable periods plus renewal periods the Company deems it reasonably certain to exercise.

The Company adopted ASU 2019-12, Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes ("ASU 2019-12"). ASU 2019-12 updates specific areas of ASC 740, Income Taxes, to reduce complexity while maintaining or improving the usefulness of the information provided to users of financial statements. The Company has adopted the new standard in the fourth quarter of 2021 and upon adoption we did not have a material impact on our consolidated financial position and results of operations.

Recently Issued Accounting Pronouncements Not Yet Adopted

In February 2016, the FASB issued ASU 2016-02, Leases ("Topic 842"), which requires lessees to recognize right-of-use assets and lease liabilities for most leases on their balance sheets. Expense recognition for lessees under Topic 842 is similar to current lease accounting and once adopted, it will require enhanced disclosures to help the financial statement users better understand the amount, timing, and uncertainty of cash flows arising from leases. The recognition, measurement and presentation of expenses and cash flows arising from a lease will primarily depend on its classification as a finance or operating lease. As an emerging growth company, the Company elected to adopt the Topic 842 under the extended transition period available to entities in the "all other" category, which would be effective for the annual period beginning on January 1, 2022 and all interim periods within the year ended December 31, 2023. Early adoption is permitted. The Company has selected an information system application to centralize the tracking and accounting for the Company's leases and is currently in the process of completing implementation of that application. The Company plans to adopt the Topic 842 using the modified retrospective transition method and will not restate comparative periods. The modified retrospective transition method requires the cumulative effect, if any, of initially applying the guidance to be recognized as an adjustment to our accumulated deficit as of that adoption date. The Company plans to elect the package of practical expedients permitted under the transition guidance within the Topic 842, which allows the Company to carry forward prior conclusions about lease identification, classification and initial direct costs for leases entered into prior to adoption of the Topic 842. Additionally, the Company plans to not separate lease and non-lease components of the leases. For leases with a term of 12 months or less, the Company plans to elect the short-term lease exemption, which allows it to not recognize right-of-use assets or lease liabilities for qualifying leases existing at transition and new leases we may enter into in the future. The Company is currently in the process of quantifying the impact, but is currently unable to estimate the impact on the consolidated financial statements.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* ("ASU 2016-13"). The new credit losses standard changes the impairment model for most financial assets and certain other instruments. For trade and other receivables, contract assets recognized as a result of applying ASC 606, loans and certain other instruments, entities will be required to use a new forward looking "expected loss" model that generally will result in earlier recognition of credit losses than under today's incurred loss model. As an emerging growth company, ASU 2016-13 is effective for annual periods beginning after December 15, 2022, with early adoption permitted. Application of the amendments is through a cumulative-effect adjustment to the opening retained earnings as of the beginning of the first reporting period in which the guidance is effective. The Company is currently evaluating the impact of the new guidance on its financial statements and related disclosures.

In November 2021, the FASB issued ASU 2021-10, Government Assistance (Topic 832), Disclosures by Business Entities About Government Assistance, which requires entities to provide disclosures on material government assistance transactions for annual reporting periods. The disclosures include information around the nature of the assistance, the related accounting policies used to account for government assistance, the effect of government assistance on the entity's financial statements, and any significant terms and conditions of the agreements, including commitments and contingencies. The new standard is effective for the Company on January 1, 2022 and only impacts annual financial statement footnote disclosures. The Company does not expect the impact of adopting this new accounting guidance to have a material effect on its consolidated financial statements and related disclosures.

3. Business Combination

As discussed in Note 1, on July 22, 2021, the Company consummated the Business Combination and received net cash proceeds of $510.0 million.

Pursuant to the Business Combination, the following occurred:

- Holders of 10,188 shares of CMLS's Class A common stock sold in its initial public offering (the "public shares") exercised their right to have such shares redeemed for a full pro rata portion of the trust account

holding the proceeds from CMLS's initial public offering (the "IPO"), which was approximately $10.00 per share, or $101,880 in aggregate.

- Each share of CMLS's Class B common stock was automatically converted into common stock of the Company.
- Each share of the Legacy Sema4 Class B common stock was converted into 1/100th of a share of Legacy Sema4 Class A common stock and each share of Legacy Sema4 common stock and preferred stock was canceled and received a portion of the merger consideration, resulting in certain Legacy Sema4 stockholders receiving $230,665,220 of cash and the Legacy Sema4 stockholders receiving an aggregate of 178,336,298 shares of common stock of the Company.
- Pursuant to subscription agreements entered into on February 9, 2021, certain investors agreed to subscribe for an aggregate of 35,000,000 newly-issued shares of common stock at a purchase price of $10.00 per share for an aggregate purchase price of $350,000,000 (the "PIPE Investment"). Concurrently with the closing of the Business Combination, the Company consummated the PIPE Investment.
- After giving effect to the Merger, the redemption of public shares and the conversion of the CMLS Class B common stock as described above, and the consummation of the PIPE Investment, there were 240,190,402 shares of the Company's common stock issued and outstanding.

The Company recorded $51.8 million of transaction costs which consist of direct, incremental legal, professional, accounting, and other third-party fees that were directly related to the execution of the Merger in additional paid-in capital. Upon consummation of the Merger, $9.0 million of the transaction costs relates to costs incurred by Legacy Sema4 and reclassed to offset against equity from prepaid expense and other current assets.

4. Revenue Recognition

The following table summarizes the Company's disaggregated revenue (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Diagnostic test revenue:			
Patients with third-party insurance	$ 169,576	$ 138,153	$ 169,538
Institutional customers	31,717	35,200	20,888
Self-pay patients	3,807	1,998	1,241
Total diagnostic test revenue	205,100	175,351	191,667
Other revenue	7,095	3,971	4,507
Total	$ 212,195	$ 179,322	$ 196,174

Reassessment of variable consideration

Subsequent changes to the estimate of the transaction price, determined on a portfolio basis when applicable, are generally recorded as adjustments to revenue in the period of the change. The Company updates variable consideration estimated quarterly. Our assessment performed at year-end did not result in material adjustments to the Company's previously reported revenue or accounts receivable amounts.

Remaining performance obligations

Due to the long-term nature of the collaboration service agreement, the Company's obligations pursuant to such agreements represent partially unsatisfied performance obligations as of December 31, 2021. The revenues under existing service agreements with original expected durations of more than one year are estimated to be approximately $10.2 million. The Company expects to recognize the majority of this revenue over the next 3.3 years.

Contract assets and liabilities

Contract assets consist of the Company's right to consideration that is conditional upon its future performance. Contract assets arise in collaboration service agreements for which revenue is recognized over time but the Company's right to bill the customer is contingent upon the achievement of contractually-defined milestones.

Contract liabilities consist of customer payments in excess of revenues recognized. For collaboration service agreements, the Company assesses the performance obligations and recognizes contract liabilities as current or non-current based upon forecasted performance.

A reconciliation of the beginning and ending balances of contract assets and contract liabilities is shown in the table below (in thousands):

	Contract Assets	Contract Liabilities
December 31, 2020	$ 2,028	$ 3,811
Contract asset additions	1,163	—
Customer prepayments	—	2,223
Revenue recognized	105	(2,265)
December 31, 2021	$ 3,296	$ 3,769

The increase in contract assets as of December 31, 2021 is primarily due to the execution of a service agreement with a customer during the year. The Company presents contracts assets and contract liabilities arising from this customer contract on a net basis on its balance sheets. As of December 31, 2021 and December 31, 2020, $0.5 million and $1.8 million are recorded as current contract liabilities, respectively.

Costs to fulfill contracts

Costs associated with fulfilling the Company's performance obligations pursuant to its collaboration service agreements include costs for services that are subcontracted to ISMMS. Amounts are generally prepaid and then expensed in line with the pattern of revenue recognition. Prepayment of amounts prior to the costs being incurred are recognized on the balance sheets as current or non-current asset based upon forecasted performance.

As of December 31, 2021 and 2020, the Company had outstanding deferred costs to fulfill contracts of $1.8 million and $3.0 million, respectively. At each period, all outstanding deferred costs were recorded as other current assets.

Amortization of deferred costs was $1.4 million, $0.9 million and $0.7 million for the years ended December 31, 2021, 2020 and 2019, respectively. The amortization of these costs is recorded in cost of services of the consolidated statements of operations and comprehensive loss.

5. Fair Value Measurements

The following tables set forth the fair value of financial instruments that were measured at fair value on a recurring basis (in thousands):

	December 31, 2021			
	Total	Level 1	Level 2	Level 3
Financial Assets:				
Money market funds	$ 385,370	$ 385,370	$ —	$ —
Total financial assets	$ 385,370	$ 385,370	$ —	$ —
Financial Liabilities:				
Public warrant liability	$ 14,463	$ 14,463	$ —	$ —
Private warrant liability	7,092	—	7,092	—
Earn-out contingent liability	10,244	—	—	10,244
Total financial liabilities	$ 31,799	$ 14,463	$ 7,092	$ 10,244

	December 31, 2020			
	Total	Level 1	Level 2	Level 3
Financial Assets:				
Money market funds	$ 92,940	$ 92,940	$ —	$ —
Total financial assets	$ 92,940	$ 92,940	$ —	$ —

Of the $400.6 million cash and cash equivalents presented on the consolidated balance sheets, $385.4 million is in money market funds and is classified within Level 1 of the fair value hierarchy as the fair value is based on quoted prices in active markets.

The Company's outstanding warrants include publicly-traded warrants (the "Public Warrants") which were originally issued in the IPO and warrants sold in a private placement to CMLS Holdings LLC (the "Private Warrants"). The Company evaluated its warrants under ASC 815-40, Derivatives and Hedging—Contracts in Entity's Own Equity, and concluded that they do not meet the criteria to be classified in stockholders' equity. Since the Public Warrants and Private Warrants meet the definition of a derivative under ASC 815, the Company recorded these warrants as non-current liabilities on the balance sheet at fair value upon the closing of the Business Combination, with subsequent changes in their respective fair values recognized in other income (expense), net on the consolidated statements of operations and comprehensive loss at each reporting date. As of December 31, 2021, the Public Warrants are classified within Level 1 of the fair value hierarchy as they are traded in active markets. The Private Warrants are classified within Level 2 of the fair value hierarchy as management determined the fair value of each Private Warrant is the same as that of a Public Warrant because the terms are substantially the same.

The contingent obligation to issue earn-out shares for Legacy Sema4 stockholders is accounted for as a liability and required remeasurement at each reporting date. The estimated fair value of the total earn-out shares as of December 31, 2021 is determined based on a Monte Carlo simulation valuation model. The fair value of the earn-out contingent liability is sensitive to expected volatility estimated based on selected guideline public companies and Company's common stock price which is sensitive to changes in the forecasts of earnings and/or the relevant

operating metrics. The key assumptions utilized in determining the valuation as of December 31, 2021 and Closing Date were the following:

	December 31, 2021	Closing Date
Stock price	$4.46	$11.60
Expected volatility	62.5%	70.0%
Expected term (in years)	1.6	2.0
Risk-free interest rate	0.58%	0.20%

The earn-out contingent liability is categorized as Level 3 of the fair value hierarchy as the Company utilizes unobservable inputs in estimating volatility rate. Initial fair value determined and recorded at the Closing Date was $143.1 million and a gain of $132.9 million was recorded in the change in fair market value of warrant and earn-out contingent liability in the consolidated statements of operations and comprehensive loss based on re-measurement performed as of December 31, 2021.

6. Property and Equipment

Property and equipment consisted of the following (in thousands):

	As of December 31,	
	2021	2020
Laboratory equipment	$ 28,552	$ 22,818
Equipment under capital leases	21,384	20,743
Leasehold improvements	21,905	16,736
Capitalized software	25,693	14,631
Building under capital lease	6,276	6,276
Construction in-progress	940	4,673
Computer equipment	6,634	4,118
Furniture, fixtures and other equipment	3,241	3,214
Total property and equipment	114,625	93,209
Less: accumulated depreciation and amortization	(51,906)	(30,099)
Property and equipment, net	$ 62,719	$ 63,110

For the years ended December 31, 2021, 2020 and 2019, depreciation and amortization expense was $21.8 million, $11.7 million and $6.4 million, respectively, which included software amortization expense of $5.6 million, $3.0 million and $1.2 million for the years ended December 31, 2021, 2020 and 2019, respectively. Depreciation and amortization expense is included within the statements of operations and comprehensive loss as follows (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Cost of services	$ 14,094	$ 9,055	$ 4,752
Research and development	5,819	1,040	821
Selling and marketing	3	—	—
General and administrative	1,891	1,639	834
Total depreciation and amortization expenses	$ 21,807	$ 11,734	$ 6,407

7. Related Party Transactions

On June 1, 2017, the Company signed a contribution and funding agreement and other agreements with ISMMS, whereby ISMMS contributed certain assets and liabilities related to the Company's operations, provided certain services to the Company, and also committed to funding the Company up to $55.0 million in future capital contributions in exchange for equity in the Company, of which $55.0 million was drawn as of December 31, 2019. Following the transaction, the Company commenced operations and began providing the services and performing research.

For years ended December 31, 2021, 2020 and 2019, the Company incurred certain costs with ISMMS. Expenses recognized under the TSA totaled $1.4 million, $7.2 million and $7.8 million for the years ended December 31, 2021, 2020 and 2019, respectively, and are presented within related party expenses in the consolidated statements of operations and comprehensive loss. The Company had TSA payables due to ISMMS of $0 and $0.6 million as of December 31, 2021 and 2020, respectively. These amounts are included within due to related parties on the Company's consolidated balance sheets.

Expenses recognized pursuant to other service arrangements with ISMMS totaled $7.0 million, $4.4 million and $3.5 million for the years ended December 31, 2021, 2020 and 2019, respectively. These amounts are included in either cost of services or related party expenses on the consolidated statements of operations and comprehensive loss depending on the particular activity to which the costs relate. Payables due to ISMMS for the other service arrangements were $2.6 million and $0.8 million as of December 30, 2021 and 2020, respectively. These amounts are included within due to related parties on the Company's consolidated balance sheets.

Additionally, the Company incurred $1.3 million in purchases of diagnostic testing kits and materials for the year ended December 31, 2021 from an affiliate of a member of the Board of Directors who has served in the role since July 2021. The prices paid represent market rates. Payables due were $0.1 million as of December 31, 2021.

Total related party costs are included within cost of services and related party expenses in the consolidated statements of operations and comprehensive loss as follows (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Costs of services	$ 3,975	$ 2,189	$ 1,859
Related party expenses	5,659	9,395	9,452
Total related party costs	$ 9,634	$ 11,584	$ 11,311

8. Long-Term Debt

Loan and Security Agreement (the "SVB Agreement")

On November 15, 2021, the Company and Sema4 OpCo (together, the "Borrower") entered into the SVB Agreement with Silicon Valley Bank ("SVB"). The SVB Agreement provides for a Revolver up to an aggregate principal amount of $125.0 million, including a sublimit of $20.0 million for Letters of Credit (as such terms are defined in the SVB Agreement). The outstanding principal amount of any Advance (as such term is defined in the SVB Agreement) will bear interest at a floating rate per annum equal to the greater of (1) 4.00% and (2) the Prime Rate plus the Prime Rate Margin. The Revolver will mature on November 15, 2024.

The obligations under the SVB Agreement are secured by a first priority perfected security interest in substantially all of the Company's assets except for (i) Governmental Collection Accounts (as defined in the SVB Agreement), (ii) more than 65% of the presently existing and thereafter arising issued and outstanding shares of capital stock owned by Borrowers in a Foreign Subsidiary (as such term is defined in the SVB Agreement) and (iii) intellectual property pursuant to the terms of the SVB Agreement.

The SVB Agreement contains affirmative and negative covenants, including, among other things, restrictions on indebtedness, liens, investments, mergers, dispositions, and dividends and other distributions.

The SVB Agreement requires the Borrower to comply with certain financial covenants if Liquidity (as such term is defined in the SVB Agreement) falls below $135.0 million. These financial covenants include (i) a minimum Adjusted Quick Ratio (as such term is defined in the SVB Agreement) and (ii) the achievement of certain minimum revenue targets. On a monthly basis, the Borrowers would be required to maintain a minimum Adjusted Quick Ratio of greater than or equal to 1.25 to 1.0. The Borrower must also maintain certain trailing six-month minimum revenue targets through maturity if outstanding borrowings under the Revolver exceed $50.0 million.

The SVB Agreement also includes customary events of default, including failure to pay principal, interest or certain other amounts when due, material inaccuracy of representations and warranties, violation of covenants, certain bankruptcy and insolvency events, certain undischarged judgments, material invalidity of guarantees or grant of security interest, material adverse change, and involuntary delisting from the Nasdaq Stock Market, in certain cases subject to certain thresholds and grace periods. If one or more events of default occurs and continues beyond any applicable cure period, SVB may, without notice or demand to the Borrower, terminate its commitment to make further loans and declare all of the obligations of the Borrowers under the SVB Agreement to be immediately due and payable. The Company is in compliance with all covenants as of December 31, 2021.

No amounts have been drawn under the SVB Agreement as of December 31, 2021.

2016 Funding Commitment

In April 2016, ISMMS received a $5.0 million loan funding commitment (the "DECD Loan Agreement") from the Connecticut Department of Economic and Community Development ("DECD") to support the Genetic Sequencing Laboratory Project in Branford, Connecticut (the "Project"). The DECD made a commitment to offer a total of $9.5 million in loan funding for leasehold improvements, construction, equipment, research and development, and administrative expenses over a period of ten years at an annual interest rate of 2.0% (collectively, "Phase 1" and "Phase 2" of funding for the Project). On June 1, 2017, as part of the Spin-out, ISMMS assigned both the agreement underlying the Project and the DECD Loan Agreement to Sema4 OpCo, Inc. ("OpCo"). ISMMS guaranteed and continues to guarantee's obligation to repay the DECD. Debt due to the DECD is collateralized by providing a security interest in certain machinery and equipment the Company acquired from ISMMS, as defined in a separate security agreement (the "DECD Security Agreement"). The DECD Security Agreement provides a security for the payment and performance of meeting the Company's obligations to the DECD until the obligations have been fully satisfied.

In June 2018, the Company amended the existing $9.5 million DECD Loan Agreement (the "Amended DECD Loan Agreement") with the DECD by increasing the total loan commitment to $15.5 million at the same fixed annual interest rate of 2.0% for a term of 10 years from the date the new funds are disbursed ("Phase 3" of funding for the Project). The terms of the Amended DECD Loan Agreement require the Company to make interest-only payments through July 2023 and principal and interest payments commencing in August 2023 through July 2028.

In addition, under the terms of the Amended DECD Loan Agreement, the DECD may grant partial principal loan forgiveness of up to $12.3 million in the aggregate. Such forgiveness is contingent upon the Company achieving job creation and retention milestones, specifically:

- $4.5 million of Phase 1 funding ($5.0 million) was forgiven in September 2018 based on creating and maintaining 35 new full-time positions in Connecticut, with a combined annual average compensation of $70,000 for a period of 24 continuous months by December 31, 2017;
- $2.8 million of Phase 2 funding ($4.5 million) will be forgiven based on creating 228 new full-time positions in Connecticut, with a combined annual average compensation of $83,000, and maintaining an average of 269 full-time positions for a period of 24 continuous months by December 31, 2021;
- $3.0 million of Phase 3 funding ($6.0 million) will be forgiven based on creating an additional 181 full-time positions in Connecticut, with a combined annual average compensation of $83,000, and maintaining an average of 450 full-time positions for a period of 24 continuous months by December 31, 2022; and

– An additional $2.0 million of funding will be forgiven based on creating an additional 103 full-time positions in Connecticut, with a combined annual average compensation of $83,000, and maintaining an average of 553 full-time positions for a period of 24 continuous months by December 31, 2023.

The outstanding loan balance from the DECD was $11.0 million at December 31, 2021 and 2020.

As of December 31, 2021, long-term debt matures as follows (in thousands):

2022	$	—
2023		875
2024		2,131
2025		2,174
2026		2,218
Thereafter		3,602
Total maturities of long-term debt		11,000
Less: Current portion of long-term debt		—
Total long-term debt, net of current portion	$	11,000

Debt due to the DECD is collateralized by providing a security interest in certain machinery and equipment the Company acquired from ISMMS, as defined in a separate security agreement. The DECD Security Agreement provides a security for the payment and performance of meeting the Company's obligations to the DECD until the obligations have been fully satisfied.

2020 Master Loan Agreement

In August 2020, the Company entered into a loan and security agreement with a bank (the "Master Loan Agreement"), in which the Company received a loan of $6.3 million and deposited the proceeds into a deposit account held by the bank. The Company was required to make sixty consecutive monthly payments of principal and interest at a fixed monthly amount of $0.1 million beginning in November 2020. Interest payments were fixed at an annual interest rate of 4.75%.

The Company recorded the $6.3 million proceeds as restricted cash on the consolidated balance sheets at December 31, 2020. The outstanding loan balance was $6.1 million at December 31, 2020. In July 2021, the Company terminated the Master Loan Agreement by paying off the full amount, including $5.4 million principal and interest and $0.1 million in early payment penalties assessed pursuant to the terms of the agreement which is included in other income, net in the consolidated statements of operations and comprehensive loss.

2020 Master Lease Agreement

In December 2020, the Company entered into a lease agreement with a lender whereby the Company agreed to sell certain equipment and immediately lease back the equipment, resulting in proceeds of $3.6 million. Per the terms of the agreement, a financial institution issued an irrevocable standby letter of credit to the lender for $3.6 million. The Company was required to make sixty consecutive monthly payments of principal and interest at a fixed monthly amount of $0.1 million beginning in February 2021. Interest payments were fixed at an annual interest rate of 3.54%.

The Company was required to maintain an aggregate amount on deposit equal to at least 105% of the value of any outstanding letters of credit issued by the financial institution on the Company's behalf. The letter of credit was required to be in place until all obligations had been paid in full. Further, the Company was required to furnish annual audited financial statements and other financial information to the lender on a regular basis. The Company was in compliance with the covenants as of December 31, 2020.

The Company recorded the $3.6 million proceeds as restricted cash on the consolidated balance sheets at December 31, 2020. The outstanding loan balance was $3.6 million at December 31, 2020. In July 2021, the

Company terminated the Master Lease Agreement by paying off the full amount, including $3.3 million principal and interest and early payment penalties of $0.2 million assessed pursuant to the terms of the agreement which is included in other income, net in the consolidated statements of operations and comprehensive loss.

9. Commitments and Contingencies

Operating Leases

The Company's operating lease arrangements are principally for office space and laboratory facilities. The Company's headquarter lease was initially entered into via sub-lease agreements with ISMMS and a third party and they will expire in 2034. The agreements include escalating rent and rent-free period provisions. The third-party sub-lease agreement required the Company to deliver a letter of credit from a financial institution equal to the amount of the security deposit on the office space. Accordingly, in February 2020, a financial institution issued an irrevocable standby letter of credit to the third party for $0.9 million, which is recorded as restricted cash on the consolidated balance sheets as of December 31, 2021.

In April 2019, the Company entered into a sublease agreement to rent a building to be used for office and laboratory facility (the "Stamford Lease") for a base term of 325 months, expiring in October 2046. The Company has the option to renew the lease at the end of the initial base term for either one period of 10 years, or two periods of 5 years. There is also an early termination option in which the Company may cancel the lease after the 196th month with cancellation fees. At inception of the Stamford Lease, the value of the land was determined to be more than 25% of the total value and therefore the building is accounted for as a capital lease and the land as an operating lease.

In January 2020, the Company entered into a lease agreement which expanded our existing laboratory facility in Branford, Connecticut. The lease commenced in February 2020 with a 10 year term. The lease includes escalating rent fees over the lease term.

Future minimum payments under non-cancelable operating leases as of December 31, 2021 are as follows (in thousands):

2022	$	4,383
2023		4,474
2024		4,562
2025		4,684
2026		4,775
Thereafter		45,463
Total operating lease obligations	$	68,341

Rent expense is recognized on a straight-line basis over the lease term and the Company recorded rent expense related to non-cancelable operating leases of $5.7 million, $5.3 million and $0.8 million for the years ended December 31, 2021, 2020 and 2019, respectively. Rent expense related to month-to-month operating leases was $1.2 million, $3.2 million, and $2.8 million for the years ended December 31, 2021, 2020 and 2019, respectively.

Capital Leases

The Company entered into various capital lease agreements to obtain laboratory equipment which contain bargain purchase commitments at the end of the lease term. The terms of the capital leases range from 3 to 5 years with interest rates ranging from 3.7% to 12.0% The leases are secured by the underlying equipment. Interest rate for the Stamford Lease is 13.1%.

Property and equipment under capital leases was $27.7 million and $27.0 million as of December 31, 2021 and 2020, respectively. Accumulated amortization on capital lease assets was $13.6 million and $9.7 million at December 31, 2021 and 2020, respectively.

For all capital leases, the portion of the future payments designated as principal repayment is recorded as a capital lease obligation on the Company's consolidated balance sheets in accordance with repayment terms. Future payments under capital leases at December 31, 2021, are as follows (in thousands):

2022	$ 4,890
2023	3,584
2024	2,763
2025	2,451
2026	2,003
Thereafter	49,883
Total capital lease obligations	65,574
Less: amounts representing interest	(43,728)
Present value of net minimum capital lease payments	21,846
Less: current portion	(3,419)
Capital lease obligations, net of current portion	$ 18,427

Assets acquired under capital leases was $0.6 million, $7.5 million and $9.8 million for the years ended December 31, 2021, 2020 and 2019, respectively. Interest expense related to capital leases was $2.3 million, $2.2 million and $0.7 million for the years ended December 31, 2021, 2020 and 2019, respectively.

Purchase Obligations

The following sets forth purchase obligations as of December 31, 2021 with a remaining term of at least one year (in thousands):

Contractual Obligations	2022	2023	2024	Total Commitments
Materials, services and reagents provider	$ 11,184	$ 663	$ —	$ 11,847
Software provider	3,084	3,092	1,076	$ 7,252
Research and development	1,910	1,010	64	$ 2,984
Equipment provider	469	400	139	$ 1,008
	$ 16,647	$ 5,165	$ 1,279	$ 23,091

The Company enters into contracts with suppliers to purchase materials needed for diagnostic testing. These contracts generally do not require multiple-year purchase commitments.

Contingencies

The Company is a party to various actions and claims arising in the normal course of business. The Company does not believe that the outcome of these matters will have a material effect on the Company's consolidated financial position, results of operations or cash flows. However, no assurance can be given that the final outcome of such proceedings will not materially impact the Company's financial condition or results of operations.

The Company was not a party to any material legal proceedings as of December 31, 2021, nor is it a party to any legal proceedings as of the date of issuance of these consolidated financial statements.

Defined Contribution Plan

Substantially all of the Company's employees in the U.S. are eligible to participate in the defined contribution plan the Company sponsors. The defined contribution plan allows employees to contribute a portion of their compensation in accordance with specified guidelines. The Company, at its discretion, makes matching contributions. The Company contributed $8 million, $5.5 million and $4 million for the years ended December 31, 2021, 2020 and 2019, respectively.

10. Stock-Based Compensation

Stock Incentive Plans

The Company's 2017 Equity Incentive Plan (the "2017 Plan"), as amended in February 2018, allowed the grant of options, restricted stock awards, stock appreciation rights and restricted stock units. No options granted under the 2017 Plan are exercisable after 10 years from the date of grant, and option awards generally vest over a four-year period.

The 2017 Plan was terminated in connection with the adoption of the Company's 2021 Equity Incentive Plan (the "2021 Plan"). Any awards granted under the 2017 Plan that remained outstanding as of the Closing Date and were converted into awards with respect to the Company's Class A common stock in connection with the consummation of the Business Combination continue to be subject to the terms of the 2017 Plan and applicable award agreements, except for a modification of the repurchase provision, which is discussed further below.

On July 22, 2021, in connection with the Business Combination, the 2021 Plan became effective and 32,734,983 authorized shares of common stock were reserved for issuance thereunder. This Plan will be administered by the Compensation Committee of the Company's Board of Directors, including determination of the vesting, exercisability and payment of the awards to be granted under this Plan. No awards granted under the 2021 Plan are exercisable after 10 years from the date of grant, and the awards granted under the 2021 Plan generally vest over a four-year period on a graded vesting basis.

As of December 31, 2021, there was an aggregate of 15,467,838 shares available for grants of stock options or other awards under the 2021 Plan.

Employee Stock Purchase Plan

The 2021 Employee Stock Purchase Plan (the "2021 ESPP") became effective in connection with the Business Combination. The 2021 ESPP authorizes the issuance of shares of common stock pursuant to purchase rights granted to employees. A total of 4,804,011 shares of common stock have been reserved for future issuance under the 2021 ESPP. On each January 1 of each of 2022 through 2031, the aggregate number of shares of common stock reserved for issuance under the 2021 Plan may be increased automatically by the number of shares equal to one percent (1%) of the total number of shares of all classes of common stock issued and outstanding on the immediately preceding December 31. The Company did not make any grants of purchase rights under the 2021 ESPP during the year ended December 31, 2021.

Stock Option Activity

Under the 2017 Plan, the Company had a call option to repurchase awards for cash from the plan participants upon termination of the participant's employment or consulting agreement (the "2017 Plan Call Option"). The options granted under the 2017 plan were accounted for as liability awards due to the 2017 Plan Call Option. The Company had a history of repurchase practice and the intention to repurchase the vested options. Therefore, the fair value of the liability awards was remeasured at each reporting period until the stockholder bears the risks and rewards of equity ownership for a reasonable period of time, which the Company concludes is at least six months.

Upon consummation of the Business Combination, the Company's Board of Directors waived the Company's right under the 2017 Plan Call Option to repurchase awards for cash from the plan participants upon termination of the participant's employment or consulting agreement. As such, the Company modified the liability awards to equity awards and reclassified the modification date fair value of the awards to stockholders' equity in the consolidated financial statements as of July 22, 2021. An incremental expense of $0.4 million resulting from the modification event was recorded in the year ended December 31, 2021.

All stock options granted under the 2021 Plan are accounted for as equity awards.

The following summarizes the stock option activity, which reflects the conversion of the options granted under the 2017 Plan into awards with respect to the Company Class A common stock in connection with the consummation of the Business Combination (in thousands, except share and per share amounts):

	Stock Options Outstanding	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (years)	Aggregate Intrinsic Value
Balance at December 31, 2020	32,339,970	$ 0.54	7.82	$ 159,899
Options granted	3,474,905	$ 7.29		
Options exercised	(2,248,705)	$ 0.61		
Options forfeited and canceled	(2,660,627)	$ 1.16		
Balance at December 31, 2021	30,905,543	$ 1.24	6.80	$ 109,887
Options exercisable at December 31, 2021	22,930,309	$ 0.45	6.08	$ 92,974

Nonvested options outstanding at the end of the year was 7,975,234 with weighted average grant-date fair value of $8.38.

The weighted-average grant-date fair value of options granted and total fair value of the options with tranches vested was $4.97 and $44.6 million for the year ended December 31, 2021, respectively. The weighted-average grant-date fair value of options forfeited and canceled was $10.52 for the year ended December 31, 2021. The aggregate intrinsic value of exercised options was $17.1 million, $0.6 million and $0.0 million in the years ended December 31, 2021, 2020 and 2019, respectively, and is calculated based on the difference between the exercise price and the fair value of the Company's common stock as of the exercise date. The total payments for share-based liabilities were $0.1 million, $0.3 million and $1.0 million in the years ended December 31, 2021, 2020 and 2019, respectively.

Due to the historical accounting under the liability awards and modification accounting applied upon consummation of the Business Combination, as described above, the Company used the fair value determined on the modification date when calculating the grant-date and total fair value disclosed.

The fair value of the stock option awards for the period ended December 31, 2021, and as of December 31, 2020, and 2019 were estimated using the Black-Scholes option pricing model with the following assumptions:

	2021	2020	2019
Expected volatility	49.60%-67.70%	65.80%	60.00%
Weighted-average expected volatility	66.15%	65.80%	60.00%
Expected term (in years)	5.00-6.06	0.50–1.49	3.00–5.00
Risk-free interest rate	0.71%-1.26%	0.10%	1.40%–1.43%
Dividend yield	—	—	—
Fair value of Class A common stock	$7.62-$11.60	$5.49	$0.77

We estimated a volatility factor for the Company's options based on analysis of historical share prices of a peer group of public companies. We did not rely on the volatility of the Company's common stock because its limited trading history. We estimated the expected term of options granted using the "simplified method," which is the mid-point between the vesting date and the ending date of the contractual term. We did not rely on the historical holding periods of the Company's options due to the limited availability of exercise data. We used a risk-free interest rate based on the U.S. Treasury yield curve in effect for bonds with maturities consistent with the expected term of the option.

Restricted Stock Units (RSU)

The Company issued time-based RSUs to employees under the 2021 Plan. The RSUs automatically convert to common stock on a one-for-one basis as the awards vest. The Company measures the value of RSUs at fair value based on the closing price of the underlying common stock on the grant date. The RSUs granted generally vest over a four year vesting period from the grant date, however, the Company also granted certain RSUs during the three months ended December 31, 2021, which were vesting beginning 12 months from the grant date and vesting immediately on the grant date. The following table summarizes the activity related to the Company's time-based RSUs:

	Restricted Stock Units Outstanding	Weighted Average Grant Date Fair Value Per Unit
Balance at December 31, 2020	—	—
Restricted Stock Units granted	14,250,909	$7.55
Restricted Stock Units vested	(1,466,010)	$6.75
Restricted Stock Units forfeited	(195,341)	$7.62
Balance at December 31, 2021	12,589,558	$7.64

Nonvested RSUs outstanding at the end of the year was 12,589,558 with weighted average grant-date fair value of $7.64. The total fair value of RSUs vested for the year ended December 31, 2021 was $9.9 million.

Earn-out RSUs

The grant date fair value determined for Triggering Event I, II and III was $1.82, $1.39 and $0.94 per unit, respectively. Any re-allocated RSUs due to the Sema4 Legacy option holders' forfeiture activities were accounted for as new grants and the fair value determined for Triggering Event I, II and III was $0.86, $0.61 and $0.41 per unit, respectively. Based on the grant date fair value, the Company expects to record total expense related to the Earn-out RSU Awards of $3.5 million. The Company expects to recognize the stock-compensation cost over the longer of the derived service period or service period.

Stock Appreciation Rights (SAR) Activity

The Company historically granted SAR to one employee and one consultant with exercise condition of a liquidation event. As a result of the Business Combination, settlement of the outstanding vested SARs in exchange for a cash payment and to cancel the outstanding unvested SARs was agreed upon and an expense of $3.8 million related to the vested SAR was recognized by the Company during the year ended December 31, 2021. There were no outstanding SARs as of December 31, 2021.

Stock-Based Compensation Expense

Stock-based compensation expense is included within the consolidated statements of operations and comprehensive loss as follows (in thousands):

	Year Ended December 31,		
	2021	2020	2019
		(Restated)[1]	
Cost of services	$ 22,567	$ 12,942	$ 710
Research and development	47,183	26,650	1,281
Selling and marketing	29,110	11,755	650
General and administrative	120,561	68,884	2,841
Total stock-based compensation expense	$ 219,421	$ 120,231	$ 5,482

(1) Refer to Note 2, "Summary of Significant Accounting Policies." for further details and discussions.

As of December 31, 2021, unrecognized stock-based compensation cost related to the unvested portion of the Company's stock options was $29.7 million, which is expected to be recognized on a graded-vesting basis over a weighted-average period of 1.6 years. As of December 31, 2021, unrecognized stock-based compensation cost related to the Company's RSUs was $78.4 million, which is expected to be recognized on a graded-vesting basis over a weighted-average period of 1.7 years.

11. Redeemable Convertible Preferred Stock

There were no shares of Redeemable Convertible Preferred Stock outstanding as of December 31, 2021. Redeemable Convertible Preferred Stock as of December 31, 2020 consisted of the following (in thousands, except share data):

Redeemable Convertible Preferred Stock	Shares Authorized	Shares Issued and Outstanding	Amount	Aggregate Liquidation Preference
Series A-1	55,399,943	55,399,943	$ 51,811	$ 55,000
Series A-2	64,718,940	49,700,364	46,480	49,342
Series B	41,937,960	41,937,960	118,824	204,302
Series C	24,497,317	24,496,946	117,324	121,397
Total Redeemable Convertible Preferred Stock	186,554,160	171,535,213	$ 334,439	$ 430,041

Prior to the completion of the Business Combination, there were no significant changes to the terms of the Convertible Preferred Stock. Upon closing of the Merger, each share Preferred Stock (as defined in the Proxy Statement) was cancelled and received a portion of the merger consideration, resulting in certain Legacy Sema4 preferred stockholders receiving $230.0 million of cash and an aggregate of 148,543,062 shares of common stock. The Company recorded the conversion at the carrying value of the Redeemable Convertible Preferred Stock at the time of Closing.

12. Common Stock

There were 242,647,604 shares of Sema4 Holdings Class A common stock and 124 shares of Legacy Sema4 Class A common stock issued and outstanding as of December 31, 2021 and 2020, respectively. There were 0 and 130,557 shares of Class B common stock issued and outstanding as of December 31, 2021 and 2020, respectively.

13. Income Taxes

The components of income before incomes taxes consisted of the following (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Foreign	$ —	$ —	$ —
Domestic	(245,390)	(241,340)	(29,704)
Total	(245,390)	(241,340)	(29,704)

	Year Ended December 31,		
	2021	2020	2019
Current			
Federal	$ —	$ —	$ —
State and Local	$ —	$ —	$ —
Foreign	$ —	$ —	$ —
Total Current	$ —	$ —	$ —
Deferred			
Federal	$ —	$ —	$ —
State and Local	$ —	$ —	$ —
Foreign	$ —	$ —	$ —
Total Deferred	$ —	$ —	$ —
Total Tax Expense	$ —	$ —	$ —

For the years ended December 31, 2021, 2020 and 2019, the Company did not have a current or deferred income tax expense or (benefit). Accordingly, the effective tax rate for the Company for the years ended December 31, 2021, 2020 and 2019 was zero percent. A reconciliation of the anticipated income tax expense/(benefit) computed by applying the statutory federal income tax rate of 21% to income before taxes to the amount reported in the statement of operations and comprehensive loss is as follows (in thousands):

	Year Ended December 31,		
	2021	2020	2019
U.S. federal taxes at statutory rate	21.0%	21.0%	21.0%
State taxes (net of federal benefit)	10.5	2.1	3.5
Research and development tax credits	0.7	0.6	3.4
Non-deductible stock-based compensation	(11.3)	(7.8)	(3.3)
162(m) Limitation	(5.7)	—	—
Permanent Items	(0.2)	—	(0.5)
Unrealized fair market value gain on warrants	17.0	—	—
Change in valuation allowance	(32.0)	(15.9)	(24.1)
Effective tax rate	—%	—%	—%

The tax effects of temporary differences and carryforwards that give rise to significant portions of the net deferred tax assets were as follows (in thousands):

	As of December 31,	
	2021	2020
Deferred tax assets:		
Net operating loss carryforwards	$ 132,075	$ 44,583
Stock-based compensation	12,311	7,538
Accrued compensation	4,170	2,337
Transaction costs	416	—
Research and development credits	7,285	4,667
Deferred rent	1,443	493
Unearned revenue	145	186
Deferred employer taxes	932	1,050
Interest expense	372	479
Property and equipment	608	—
Obsolete inventory reserve	655	—
Other	51	23
Gross deferred tax assets	160,463	61,356
Valuation allowance	(155,668)	(58,264)
Total deferred tax assets	4,795	3,092
Deferred tax liabilities:		
Property and equipment	—	(685)
Capitalized software	(4,795)	(2,407)
Total deferred tax liabilities	(4,795)	(3,092)
Net deferred tax assets	$ —	$ —

As of December 31, 2021, the Company had the following tax net operating loss carryforwards available to reduce future federal and state taxable income, and tax credit carryforwards available to offset future federal and Connecticut income taxes (in thousands):

	Amount	Expiration period
Tax net operating loss carryforwards:		
Federal (pre-2018 net operating losses)	33,056	2036-2037
Federal (post-2017 net operating losses)	395,421	No expiration
State and Local	589,584	2028-2042
State and Local	25,704	No expiration
Tax credit carryforwards:		
Federal research and development	5,096	2038-2040
Connecticut research and experimental	1,633	2034-2035
Connecticut research and development	556	No expiration

The Company had the following deferred tax valuation allowance balances (in thousands):

Year	Balance at the Beginning of Period	Additions	Write-Offs/Other	Balance at the End of Period
2021	$ 58,264	97,404	—	$ 155,668
2020	$ 20,082	38,182	—	$ 58,264
2019	$ 12,928	7,154	—	$ 20,082

The CARES Act, among other things, includes provisions relating to refundable payroll tax credits, net operating loss carryback periods, alternative minimum tax credit refunds, modifications to the net interest deduction limitations and technical corrections to tax depreciation methods for qualified improvement property.

The CARES Act also provides for the elective deferral of the deposit and payment of the employer share of Social Security taxes for the period beginning March 27, 2020 and ending December 31, 2020. Under the CARES Act, 50% percent of the employer portion of Social Security tax is to be remitted no later than December 31, 2021, with the remaining 50% to be remitted no later than December 31, 2022. The Company has evaluated the effect of the elective deferral on its income tax positions and determined that the corresponding deduction related to the employer portion of Social Security tax is not deductible in the year ended December 31, 2020, resulting in a nominal deferred tax asset. The Company continues to evaluate the potential effects the CARES Act may have on its operations and consolidated financial statements in future periods.

Future realization of the tax benefits of existing temporary differences and carryforwards ultimately depends on the existence of sufficient taxable income within the carryforward period. As of December 31, 2021 and 2020, the Company performed an evaluation to determine whether a valuation allowance was needed. Based on the Company's analysis, which considered all available evidence, both positive and negative, the Company determined that it is more likely than not that its net deferred tax assets will not be realized. Accordingly, the Company maintained a full valuation allowance as of December 31, 2021, 2020 and 2019. The valuation allowance increased by $97.4 million in 2021, $38.1 million in 2020 and $7.1 million in 2019 primarily due to the increase in net operating loss carryforwards, research and development tax credits, accrued compensation expenses, stock-based compensation and deferred rent expense.

Under Internal Revenue Code Section 382, if a corporation undergoes an "ownership change," the corporation's ability to use its pre-change NOL carryforwards and other pre-change tax attributes to offset its post-change income may be limited. Generally, an ownership change occurs when certain shareholders increase their aggregated ownership by more than 50 percentage points over their lowest ownership percentage in a testing period (typically three years). The Company has not completed a study to assess whether an ownership change has occurred or whether there have been multiple ownership changes since becoming a "loss corporation" as defined in Section 382. Future changes in stock ownership, which may be outside of the Company's control, may trigger an ownership change. In addition, future equity offerings or acquisitions that have an equity component of the purchase price could result in an ownership change. If an ownership change has occurred or does occur in the future, utilization of the NOL carryforwards or other tax attributes may be limited.

ASC 740 addresses the determination of whether tax benefits claimed or expected to be claimed on a tax return should be recorded in the financial statements by prescribing a model for recognizing, measuring, and disclosing uncertain tax positions. Unrecognized income tax benefits represent income tax positions taken on income tax returns but not yet recognized in the financial statements.

As of December 31, 2021, 2020 and 2019, the Company had nominal gross unrecognized tax benefits which, if recognized, would not impact the effective tax rate due to the Company's valuation allowance position. Due to the uncertainties associated with any examinations that may arise with the relevant tax authorities, it is not possible to reasonably estimate the impact of any significant increase or decrease to the unrecognized tax benefits within the next twelve months.

A reconciliation of the beginning and ending amounts of unrecognized tax benefits for the years ended December 31, 2021, 2020 and 2019 is as follows (in thousands):

	As of December 31,		
	2021	2020	2019
Unrecognized tax benefits – January 1	$ 537	$ 374	$ 195
Gross increases – tax positions in current period	—	163	179
Unrecognized tax benefits – December 31	$ 537	$ 537	$ 374

To the extent penalties and interest would be assessed on any underpayment of income tax, the Company's policy is that such amounts would be accrued and classified as a component of income tax expense in the financial statements. As of December 31, 2021, 2020 and 2019, the Company has not accrued interest or penalties related to uncertain tax positions.

The Company files U.S federal and multiple state income tax returns as prescribed by the tax laws of the jurisdictions in which it operates. In the normal course of business, the Company is subject to examination by federal and state jurisdictions, where applicable. There are currently no pending federal or state income tax examinations. As a result of the Company's net operating loss carryforwards, the Company's federal and state statutes of limitations remain open from 2016 and forward until the net operating loss carryforwards are utilized or expire prior to utilization.

14. Net Loss per Share

Basic net loss per share is computed by dividing the net loss attributable to common stockholders by the weighted-average number of shares of common stock outstanding for the period. The following table sets forth the computation of basic and diluted net loss per share attributable to common stockholders (in thousands, except for share and per share amounts):

	Year Ended December 31,		
	2021	2020	2019
Numerator:			
Net loss attributable to common stockholders	$ (245,390)	$ (241,340)	$ (32,743)
Denominator:			
Denominator for basic and diluted earnings per share-weighted-average common shares	108,077,439	5,131	124
Basic and diluted (loss) per share	$ (2.27)	$ (47,036)	$ (264,056)

As a result of the Merger, the Company has retroactively adjusted the weighted-average number of shares of common stock outstanding prior to the Merger by multiplying them by the conversion ratio of 123.8339 used to determine the number of shares of common stock into which they converted. The common stock issued as a result of the redeemable convertible preferred stock conversion upon closing of the Merger was included in the basic and diluted (loss) per share calculation on a prospective basis.

Prior to the consummation of the Merger, the Company applied the two-class method to calculate its basic and diluted net loss per share of common stock, as there were outstanding Class B common stock and redeemable convertible preferred stock that were participating securities. The two-class method is an earnings allocation formula that treats a participating security as having rights to earnings that otherwise would have been available to common stockholders. As the securities were all converted into Sema4 Holdings Class A common stock upon consummation of the Merger, all outstanding Legacy Sema4 Class B common stock has been retroactively converted to the Sema4 Holdings Class A common stock.

The following tables summarize the outstanding shares of potentially dilutive securities that were excluded from the computation of diluted net loss per share attributable to common stockholders for the period presented because including them would have been anti-dilutive:

	Year Ended December 31,		
	2021	2020	2019
Outstanding options and RSUs	35,519,867	32,339,971	22,491,757
Outstanding warrants	21,994,972	—	—
Outstanding earn-out shares	16,351,897	—	—
Outstanding earn-out RSUs	2,669,679	—	—
Redeemable convertible preferred stock (on an if-converted basis)	—	157,618,388	121,298,525
Total	76,536,415	189,958,359	143,790,282

15. Supplemental Financial Information

Other current liabilities consisted of the following (in thousands):

	As of December 31,	
	2021	2020
Accrued bonus	$ 13,561	$ 9,821
Accrued payroll	7,013	6,834
Accrued benefits	1,057	3,663
Accrued commissions	2,826	1,540
Current portion of long-term debt	—	1,770
Other	5,511	4,509
Total current other liabilities	$ 29,968	$ 28,137

16. Subsequent Events

GeneDx Acquisition

On January 14, 2022, the Company entered into an Agreement and Plan of Merger and Reorganization (the "Merger Agreement") with GeneDx, Inc., a New Jersey corporation ("GeneDx") and a wholly-owned subsidiary of OPKO Health, inc, and the other parties thereto.

Subject to the terms and conditions of the Merger Agreement, the Company agreed to pay to OPKO Health Inc., of (i) $150 million in cash at the closing of the acquisition (the "Closing"), subject to certain adjustments as provided in the Merger Agreement, (ii) 80 million shares of the Company's Class A common stock, to be issued at the Closing and (iii) up to $150 million payable following the Closing, if certain revenue-based milestones are achieved for each of the fiscal years ending December 31, 2022 and December 31, 2023 (the "Milestone Payments"). Each Milestone Payment, if and to the extent earned under the terms of the Merger Agreement, will be satisfied through the payment and/or issuance of a combination of cash and shares of Company Class A common stock (valued at $4.86 per share based on the average of the daily volume average weighted price of Company Class A common stock over the period of 30 trading days ended January 12, 2022), with such mix to be determined in Sema4's sole discretion. The acquisition is expected to close in the first half of 2022, subject to the receipt of the required approval by the Company's stockholders and the satisfaction of the closing conditions set forth in the Merger Agreement.

Subscription Agreements and PIPE Investment (Private Placement)

On January 14, 2022, concurrently with the execution of the Merger Agreement, the Company entered into subscription agreements for a private placement financing to issue and sell $200 million in Class A common stock at a price of $4.00 per share to a syndicate of institutional investors.

GENEDX, INC. AND SUBSIDIARY

COMBINED CARVE OUT FINANCIAL STATEMENTS

YEARS ENDED DECEMBER 31, 2021 and 2020

Report of Independent Auditors

To the Shareholders and the Board of Directors of GeneDx, Inc. and Subsidiary

Opinion

We have audited the combined carve-out financial statements of GeneDx, Inc. and subsidiary (the Company), which comprise the combined carve out balance sheets as of December 31, 2021 and 2020, and the related combined carve out statements of comprehensive loss, equity and cash flows for the years then ended, and the related notes (collectively referred to as the "combined financial statements").

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2021 and 2020, and the results of its operations and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audits in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Company and to meet our other ethical responsibilities in accordance with the relevant ethical requirements relating to our audits. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free of material misstatement, whether due to fraud or error. In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Company's ability to continue as a going concern for one year after the date that the financial statements are available to be issued.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free of material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.

- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Company's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

/s/ ERNST & YOUNG LLP

Miami, FL

March 15, 2022

GeneDx, Inc. and Subsidiary

COMBINED CARVE OUT BALANCE SHEETS

(in thousands, except share and per share data)

	December 31,	
	2021	2020
ASSETS		
Current assets:		
Cash and cash equivalents	$ 144	$ 199
Accounts receivable, net	20,341	22,587
Inventory	7,828	7,219
Prepaid expenses and other current assets	5,226	3,675
Total current assets	33,539	33,680
Investment in related companies	205	245
Property, plant and equipment, net	28,277	20,171
Intangible assets, net	166,888	183,702
Goodwill	282,024	282,024
Due from Parent and its subsidiaries	5	3
Operating lease right-of-use assets	5,789	6,858
Other assets	53	64
Total assets	$ 516,780	$ 526,747
LIABILITIES AND EQUITY		
Current liabilities:		
Accounts payable	$ 5,397	$ 4,897
Accrued expenses	15,565	15,779
Income taxes payable	180	163
Other current liabilities	571	691
Total current liabilities	21,713	21,530
Deferred tax liabilities, net	24,063	36,690
Operating lease liabilities	9,936	7,340
Other long-term liabilities	—	981
Total long-term liabilities	33,999	45,011
Total liabilities	55,712	66,541
Equity:		
Common Stock - $0.01 par value per share, 100 shares authorized; 100 shares issued and outstanding at December 31, 2021 and 2020, respectively	—	—
Additional paid-in capital	660,506	622,752
Accumulated deficit	(199,438)	(162,546)
Total shareholder's equity	461,068	460,206
Total liabilities and equity	$ 516,780	$ 526,747

The accompanying Notes to Combined Financial Statements are an integral part of these statements.

GeneDx, Inc. and Subsidiary

COMBINED CARVE OUT STATEMENTS OF COMPREHENSIVE LOSS

(in thousands)

	For the years ended December 31,	
	2021	2020
Revenues	$ 116,595	$ 95,020
Costs and expenses:		
Cost of revenue	84,361	74,367
Selling, general and administrative	52,439	41,583
Research and development	12,377	9,110
Amortization of intangible assets	16,813	16,813
Total costs and expenses	165,990	141,873
Operating loss	(49,395)	(46,853)
Other expense, net:		
Other expense	(44)	(87)
Other expense	(44)	(87)
Loss before income taxes	(49,439)	(46,940)
Income tax benefit	12,547	12,037
Net loss and comprehensive loss	$ (36,892)	$ (34,903)

The accompanying Notes to Combined Financial Statements are an integral part of these statements.

GeneDx, Inc. and Subsidiary

COMBINED CARVE OUT STATEMENTS OF EQUITY

(in thousands, except share data)

For the years ended December 31, 2021 and 2020

	Common Stock		Additional Paid-In Capital	Accumulated Deficit	Total
	Shares	Dollars			
Balance at December 31, 2019	100	—	$ 601,312	$ (127,755)	$ 473,557
Contributions from BioReference	—	—	21,321	—	21,321
Equity-based compensation expense	—	—	119	—	119
Genome dissolution entries	—	—	—	112	112
Net loss	—	—	—	(34,903)	(34,903)
Balance at December 31, 2020	100	—	$ 622,752	$ (162,546)	$ 460,206

	Common Stock		Additional Paid-In Capital	Accumulated Deficit	Total
	Shares	Dollars			
Balance at December 31, 2020	100	—	$ 622,752	$ (162,546)	$ 460,206
Contributions from BioReference	—	—	35,932	—	35,932
Equity-based compensation expense	—	—	1,822	—	1,822
Net loss	—	—	—	(36,892)	(36,892)
Balance at December 31, 2021	100	—	$ 660,506	$ (199,438)	$ 461,068

The accompanying Notes to Combined Financial Statements are an integral part of these statements.

GeneDx, Inc. and Subsidiary

COMBINED CARVE OUT STATEMENTS OF CASH FLOWS

(in thousands)

	For the years ended December 31,	
	2021	**2020**
Cash flows from operating activities:		
Net loss	$ (36,892)	$ (34,903)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	21,947	20,905
Dissolution of Gnome	—	112
Equity-based compensation	1,822	119
Provision for bad debts	—	84
Deferred income taxes	(12,627)	(12,240)
Gain on sale of equipment and other assets	—	5
Non-cash lease expense	3,664	465
Changes in assets and liabilities:		
Accounts receivable	2,246	11,753
Inventory	(609)	32
Prepaid expenses and other current assets	(1,551)	(1,228)
Other assets	52	25
Accounts payable	500	(961)
Accrued expenses and other liabilities	(1,496)	3,969
Net cash used in operating activities	(22,944)	(11,863)
Cash flows from investing activities:		
Capital expenditures	(13,041)	(9,815)
Investment in related companies		(245)
Proceeds from the sale of property, plant, and equipment	—	90
Net cash used in investing activities	(13,041)	(9,970)
Cash flows from financing activity:		
Subsidiary financing	(2)	(4)
Equity contributions	35,932	21,321
Net cash provided by financing activity	35,930	21,317
Net decrease in cash and cash equivalents	(55)	(516)
Cash and cash equivalents at beginning of period	199	715
Cash and cash equivalents at end of period	$ 144	$ 199
Supplemental Information:		
Income taxes paid, net	$ 60	$ 75
Purchases of property and equipment in accounts payable and accrued expenses	198	1,278
Cash paid for interest	3	80

The accompanying Notes to Combined Financial Statements are an integral part of these statements.

GeneDx, Inc. and Subsidiary

NOTES TO COMBINED CARVE OUT FINANCIAL STATEMENTS

Note 1 Business and Organization

GeneDx, Inc., a New Jersey corporation (including its subsidiaries as described below, "GeneDx", we, our or us), is a patient-centric health information company and leader in delivering clinical genomic answers to an ever-increasing community of patients, families and healthcare providers. With more than 20 years of experience in diagnosing rare disorders and diseases, we have pioneered panels, exome and whole genome sequencing and have developed a proprietary genomic interpretation and information services platform in support of healthcare partners and patients globally. We create, follow, and are informed by cutting-edge science and technology.

GeneDx, Inc. is a wholly owned subsidiary of BioReference Laboratories, Inc. ("BioReference"). BioReference and its subsidiaries, including GeneDx, are wholly owned subsidiaries of OPKO Health, Inc. ("OPKO" or "Parent"). MyGeneTeam and MyGeneTeam Canada are wholly owned subsidiaries of OPKO. GeneDx, MyGeneTeam, and MyGeneTeam Canada comprise the Combined Carve Out Financial Statements and are collectively referred to as GeneDx or the "Company". All assets and liabilities directly attributable to entities outside GeneDx have been excluded. The accompanying Combined Carve Out Financials Statements present the combined financial results of GeneDx as of and for the years ended December 31, 2021 and 2020 and are being prepared in connection with the definitive agreement between Sema4 Holdings Corp ("Sema4") and OPKO announced in January 2022 pursuant to which Sema4 has agreed to acquire GeneDx. If Sema4 does not acquire GeneDx, OPKO has committed to support the capital requirements of GeneDx necessary to meet our obligations through March 16, 2023.

In February 2020, we dissolved the operations of Genome Diagnostics, a wholly owned subsidiary of GeneDx.

Our corporate office and laboratory, which is our only physical location, is located at 207 Perry Parkway, Gaithersburg, Maryland 20877, which is a leased space.

Note 2 Impact of COVID-19

As the disease caused by SARS-CoV-2, a strain of coronavirus, COVID-19 continues to spread and severely impact the economy of the United States, we are committed to being a part of the coordinated public and private sector response to this unprecedented challenge. During the outbreak of the pandemic, the facility space and certain human resources and supplies of GeneDx were deployed to perform COVID-19 RT-PCR testing on behalf of our parent company BioReference. From 2020 through 2021, GeneDx resulted approximately 1.6 million COVID-19 RT-PCR tests. All COVID-19 testing operations of GeneDx ceased in June 2021. None of the revenue or associated costs with the COVID-19 operations run at the GeneDx facility are included in the GeneDx Combined Financial Statements.

In March 2020, in response to the outbreak of the COVID-19 pandemic, the Coronavirus Aid, Relief, and Economic Security (CARES) Act was signed into law. The CARES Act provides numerous tax provisions and other stimulus measures, including temporary changes regarding the prior and future utilization of net operating losses, temporary changes to the prior and future limitations on interest deductions, temporary suspension of certain payment requirements for the employer portion of Social Security taxes, technical corrections from prior tax legislation for tax depreciation of certain qualified improvement property, and the creation of certain payroll tax credits associated with the retention of employees.

We have received a number of benefits under the CARES Act including, but not limited to:

- We are eligible to defer depositing the employer's share of Social Security taxes for payments due from March 27, 2020, through December 31, 2020, interest-free and penalty-free;
- We received approximately $0.3 million during the year ended December 31, 2020 from the funds that were distributed to healthcare providers for related expenses or lost revenues that are attributable to the COVID-19 pandemic; and

- Clinical laboratories are provided with a one-year reprieve from the reporting requirements under the Protecting Access to Medicare Act as well as a one-year delay of reimbursement rate reductions for clinical laboratory services provided under Medicare that were scheduled to take place in 2021.

Note 3 Summary of Significant Accounting Policies

Basis of presentation. The accompanying Combined Carve Out Financial Statements have been prepared in accordance with accounting principles generally accepted in the United States (US GAAP).

Principles of consolidation. The accompanying Combined Carve Out Financial Statements include the accounts of GeneDx and of our wholly owned subsidiary, MyGeneTeam and MyGeneTeam Canada and were derived from the Consolidated Financial Statements and accounting records of the Parent as if GeneDx were operated on a standalone basis during the periods presented and were prepared in accordance with US GAAP. All intercompany accounts and transactions were eliminated in consolidation.

The Combined Carve Out Statements of Operations of GeneDx reflect general corporate and operating expenses provided by both the Parent and BioReference to GeneDx, including, but not limited to, executive management, finance, legal, information technology, employee benefits administration, treasury, procurement, and other shared services. Actual costs that may have been incurred had GeneDx been a standalone company would have depended on a number of factors, including the chosen organizational structure, outsourced functions versus those performed by employees, and strategic decisions made in areas such as information technology and infrastructure.

The Combined Carve Out Balance Sheets (the “Combined Carve Out Balance Sheets”) of GeneDx include Parent and BioReference assets and liabilities that were specifically identifiable or otherwise attributable to GeneDx, including subsidiaries and affiliates in which the Parent has a controlling financial interest or is the primary beneficiary. All cash inflows and outflows obtained and used from operations were swept to BioReference’s centralized account. GeneDx reflects transfers of cash to and from BioReference’s cash management system as a component of Total Shareholder’s Equity in the Combined Carve Out Balance Sheets.

The Combined Carve Out Financial Statements include GeneDx’s net assets and statement of comprehensive loss as described above. All intercompany transactions and accounts within the combined businesses of GeneDx have been eliminated.

Use of estimates. The preparation of financial statements in conformity with US GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ significantly from these estimates.

Cash and cash equivalents. Cash and cash equivalents include short-term, interest-bearing instruments with original maturities of 90 days or less at the date of purchase. We also consider all highly liquid investments with original maturities at the date of purchase of 90 days or less as cash equivalents. These investments include money markets and bank deposits.

Inventory. Inventory is valued at the lower of cost and net realizable value. Cost is determined by the first-in, first-out method. We consider such factors as the amount of inventory on hand, estimated time required to sell such inventory, remaining shelf-life, quality assessments and current market conditions to determine whether inventory is stated at the lower of cost and net realizable value. Inventory consists primarily of purchased laboratory supplies, which are used in our testing laboratory. GeneDx relies on a limited number of suppliers for certain laboratory reagents, as well as sequencers and other equipment and materials that it uses in its laboratory operations. GeneDx does not have short- or long-term agreements with all of its suppliers, and its suppliers could cease supplying these materials and equipment at any time, or fail to provide it with sufficient quantities of materials or materials that meet its specifications.

Goodwill and intangible assets. Goodwill represents the difference between the purchase price and the estimated fair value of net assets acquired as accounted for under the acquisition method of accounting. We recognized goodwill and intangible assets as a result of applying pushdown accounting in connection with OPKO’s

acquisition of BioReference in 2015. We determined the fair value of our intangible assets using the “income method.”

Goodwill and indefinite lived intangible assets are tested at least annually as of October 1 for impairment, or when events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable, by assessing qualitative factors, and performing a quantitative analysis if and when required, in determining whether it is more likely than not that its fair value exceeds the carrying value. Intangible assets are tested for impairment whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable.

Goodwill was $282.0 million as of both December 31, 2021 and 2020. Estimating the fair value of a reporting unit for goodwill impairment is highly sensitive to changes in projections and assumptions and changes in assumptions could potentially lead to impairment. We perform sensitivity analyses around our assumptions in order to assess the reasonableness of the assumptions and the results of our testing. Ultimately, potential changes in these assumptions may impact the estimated fair value of a reporting unit and result in an impairment if the fair value of such reporting unit is less than its carrying value.

Net intangible assets other than goodwill were $166.9 million and $183.7 million, respectively, as of December 31, 2021 and 2020.

We believe that our estimates and assumptions are reasonable and otherwise consistent with assumptions that marketplace participants would use in their estimates of fair value. However, if future results are not consistent with our estimates and assumptions, including as a result of the COVID-19 pandemic, then we may be exposed to an impairment charge, which could be material. We have one reporting segment and have reached a cumulative goodwill impairment loss of $170.6 million prior to January 1, 2019. No goodwill or intangible asset impairment was recorded for the years ended December 31, 2021 and 2020 as a result of our testing.

We amortize intangible assets with definite lives on a straight-line basis over their estimated useful lives, ranging from 3 to 20 years. We use the straight-line method of amortization as there is no reliably determinable pattern in which the economic benefits of our intangible assets are consumed or otherwise used up. Amortization expense was $16.8 million for each of the years ended December 2021 and 2020. Amortization expense from operations for our intangible assets is expected to be $16.8 million, $15.2 million, $12.3 million, $12.0 million, and $11.5 million for the years ended December 31, 2022, 2023, 2024, 2025 and 2026, respectively.

Fair value measurements. The carrying amounts of our cash and cash equivalents, accounts receivable and accounts payable approximate their fair values due to the short-term maturities of these instruments and accounts. The fair value of the due to/due from Parent and its subsidiaries is not practical to estimate due to the uncertainty regarding the timing of future payments.

Property, plant and equipment. Property, plant and equipment are recorded at cost. Depreciation is provided using the straight-line method over the estimated useful lives of the assets and includes amortization expense for assets capitalized under capital leases. The estimated useful lives by asset class are as follows: software - 3 years, computer equipment - 5 years, machinery, medical and other equipment - 8 years, furniture and fixtures - 12 years, leasehold improvements - the lesser of 10 years or the lease term and automobiles - lease term. Expenditures for repairs and maintenance are charged to expense as incurred. Depreciation expense was $5.1 million and $4.1 million for the years ended December 31, 2021 and 2020, respectively.

Impairment of long-lived assets. Long-lived assets, such as property and equipment, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, then an impairment charge is recognized for the amount by which the carrying amount of the asset exceeds the fair value of the asset. No impairment charges were recorded for the years ended December 31, 2021 and 2020.

Impairment of Equity Method Investments. Equity method investments are assessed for impairment annually or when events or circumstances suggest that the carrying amount of the investment may be impaired. An impairment charge is recorded in earnings when the decline in value below the carrying amount of its equity method investment is determined to be other-than-temporary.

Stock Compensation. OPKO grants stock options to certain employees of GeneDx and the annual contribution of non-cash employee stock compensation is recorded in operating expenses in the accompanying Combined Carve Out Statements of Comprehensive Loss with a corresponding contribution to additional paid in capital. Stock compensation for the years ended December 31, 2021 and and December 31, 2020 were:

	2021	2020
Cost of services	$ 293	$ 58
Research and development	274	39
Selling and marketing	133	7
General and administrative	1,122	15
Total stock-based compensation expense	$ 1,822	$ 119

Income taxes. Income taxes are determined as if we filed tax returns on a standalone basis utilizing the Separate Return Method. We are included in the consolidated federal income tax return filed by OPKO.

Income taxes are accounted for under the asset-and-liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and the respective tax bases and for operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in operations in the period that includes the enactment date. We periodically evaluate the realizability of our net deferred tax assets. Our tax accruals are analyzed periodically and adjustments are made as events occur to warrant such adjustment. Valuation allowances on certain U.S. deferred tax assets and non-U.S. deferred tax assets may be established because realization of these tax benefits does not meet the more-likely-than-not threshold.

The Company recognizes the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities.

Revenue recognition. We recognize revenue when a customer obtains control of promised goods or services in accordance with Accounting Standards Codification Topic 606, *Revenue from Contracts with Customers* ("Topic 606"). The amount of revenue that is recorded reflects the consideration that we expect to receive in exchange for those goods or services. We apply the following five-step model in order to determine this amount: (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) we satisfy a performance obligation.

We apply the five-step model to contracts when it is probable that we will collect the consideration we are entitled to in exchange for the goods or services we transfer to the customer. At contract inception, once the contract is determined to be within the scope of Topic 606, we review the contract to determine which performance obligations we must deliver and which of these performance obligations are distinct. We recognize as revenue the amount of the transaction price that is allocated to the respective performance obligation when the performance obligation is satisfied or as it is satisfied.

Revenue for laboratory services is recognized at the time test results are reported, which approximates when services are provided and the performance obligations are satisfied. Services are provided to patients covered by various third-party payer programs, including various managed care organizations, as well as the Medicare and Medicaid programs. For the years ended December 31, 2021 and 2020, approximately 8.6% and 6.2%, respectively, of our revenues were derived directly from the Medicare and Medicaid programs. Billings for services under third-

party payer programs are included in revenue net of allowances for contractual discounts, allowances for differences between the amounts billed and estimated program payment amounts and implicit price concessions provided to uninsured patients which are all elements of variable consideration.

The complexities and ambiguities of billing, reimbursement regulations and claims processing, as well as issues unique to Medicare and Medicaid programs, require us to estimate the potential for retroactive adjustments in the recognition of revenue in the period the related services are rendered. Adjustments to the estimated payment amounts are recorded upon settlement as an adjustment to revenue.

Concentration of credit risk and allowance for doubtful accounts. Financial instruments that potentially subject us to concentrations of credit risk consist primarily of accounts receivable. Substantially all of our accounts receivable are with either companies in the health care industry or patients. However, credit risk is limited due to the number of our clients as well as their distribution across many different geographic regions.

While we have receivables due from federal and state governmental agencies, we do not believe that such receivables represent a credit risk because the related health care programs are funded by federal and state governments, and payment is primarily dependent upon submitting appropriate documentation. As of December 31, 2021 and 2020, receivable balances (net of explicit price concessions) from Medicare and Medicaid were 3.7% and 6.9%, respectively, of our Accounts receivable, net.

The portion of our accounts receivable due from individual patients comprises the largest portion of credit risk. As of December 31, 2021 and 2020, receivables due from patients represented approximately 2.0% and 3.0%, respectively, of our Accounts receivable, net.

We assess the collectability of accounts receivable balances by considering factors such as historical collection experience, customer credit worthiness, the age of accounts receivable balances, regulatory changes and current economic conditions and trends that may affect a customer's ability to pay. Actual results could differ from those estimates. Our reported net loss is directly affected by our estimate of the collectability of accounts receivable.

Due to/from Parent and its subsidiaries. Due to/from Parent and its subsidiaries primarily represents operations between GeneDx and subsidiaries of the Parent. The Company uses a centralized approach to cash management and financing of its operations. The fair value of the due from/to Parent and its subsidiaries is not practical to estimate due to the uncertainty regarding the timing of future payments.

Shipping and handling costs. We do not charge customers for shipping and handling costs. Shipping and handling costs are classified as Cost of revenues in the Combined Carve Out Statements of Comprehensive Loss.

Recently adopted accounting pronouncements.

In June 2016, the FASB issued ASU No. 2016-13, "Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments," which amends the impairment model by requiring entities to use a forward-looking approach based on expected losses rather than incurred losses to estimate credit losses on certain types of financial instruments, including trade receivables. This may result in the earlier recognition of allowances for losses. The ASU is effective for public entities for fiscal years beginning after December 15, 2019, with early adoption permitted. The adoption of ASU 2016-13 on January 1, 2020, did not have a significant impact on our Combined Financial Statements.

Pending accounting pronouncements.

In August 2020, the FASB issued ASU No. 2020-06, "Debt – Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging – Contracts in Entity's Own Equity (Subtopic 815-40)." ASU 2020-06 will simplify the accounting for convertible instruments by reducing the number of accounting models for convertible debt instruments and convertible preferred stock. The ASU is effective for public entities for fiscal years beginning after December 15, 2021, with early adoption permitted. We are currently evaluating the impact of this new guidance on our Combined Financial Statements.

Note 4 Cost Allocations from BioReference

The historical costs and expenses reflected in our Combined Carve Out Financial Statements include an allocation for certain corporate and shared service functions provided by BioReference, including, but not limited to accounting, legal, human resources, information technology and other shared services. These expenses have been allocated to us on the basis of direct usage when identifiable, with the remainder allocated based on estimates to reasonably reflect the historical utilization of these services.

Management believes the assumptions underlying our Combined Carve Out Financial Statements, including the assumptions regarding the allocation of general corporate expenses from BioReference, are reasonable. Nevertheless, our Combined Carve Out Financial Statements may not include all of the actual expenses that would have been incurred had we operated as a standalone company during the periods presented and may not reflect our combined results of operations, financial position and cash flows had we operated as a standalone company during the periods presented. Actual costs that would have been incurred if we had operated as a standalone company would have depended on multiple factors, including organizational structure and strategic decisions made in various areas.

Note 5 Investments

In August 2020, GeneDx announced that it had entered into an operating agreement with Pediatrix Medical Group (“Pediatrix”), a provider of maternal-fetal, and pediatric medical and surgical subspecialty physician services, to offer genomic sequencing to support clinical diagnosis in neonatal intensive care units staffed by Pediatrix’s affiliated neonatologists (the “Operating Agreement”). The offering had planned to include whole exome and whole genome sequencing and genomic support services under the brand Detect Genomix (the “Joint Venture”).

Our initial capital investment in the Joint Venture was $245,000, for which we received a 49% ownership interest the Joint Venture. Beyong the initial investment, we have not made any other investments in or loans in the Joint Venture through December 31, 2021.

In order to determine the primary beneficiary of the Joint Venture, we evaluated our investment to identify if we had the power to direct the activities that most significantly impact the economic performance of the Joint Venture. Based on the capital structure, governing documents and overall business operations of the Joint Venture, we determined that, while a variable interest entity (VIE), we do not have the power to direct the activities that most significantly impact the Joint Venture’s economic performance. We determined, however, that we can significantly influence control of the Joint Venture through our board representation and voting power. Therefore, we have the ability to exercise significant influence over the Joint Venture’s operations and account for our investment the Joint Venture under the equity method.

In January 2022, GeneDx and Pediatrix reached a mutual agreement to withdraw as members of the Joint Venture, release each party’s restrictions and obligations under the Operating Agreement, cooperate to effect the winding down and dissolution of the Joint Venture, and effect other customary release and discharges related to the Joint Venture. We determined an other-than-temporary impairment on our equity method investment as a result of the termination and adjusted the carrying value of the investment as of December 31, 2021 to our recovery value.

The proportionate share of cash on hand at the Joint Venture was returned to GeneDx in February 2022.

Note 6 Composition of Certain Combined Carve Out **Financial Statement Captions**

(In thousands)	December 31, 2021	December 31, 2020
Prepaid expenses and other current assets:		
Prepaid supplies, insurance and maintenance	$ 3,422	$ 953
Taxes recoverable	1,516	1,515
Other receivables	288	1,207
	$ 5,226	$ 3,675
Property, plant and equipment, net:		
Machinery, medical and other equipment	$ 28,558	$ 32,232
Leasehold improvements	16,633	11,215
Furniture and fixtures	1,035	733
Software	179	35
Less: accumulated depreciation	(18,128)	(24,044)
	$ 28,277	$ 20,171
Intangible assets, net:		
Customer relationships	$ 237,725	$ 237,725
Technologies	36,100	36,100
Covenants not to compete	3,400	3,400
Less: accumulated amortization	(110,337)	(93,523)
	$ 166,888	$ 183,702
Accrued expenses:		
Employee benefits	$ 8,341	$ 7,021
Other	7,224	8,758
	$ 15,565	$ 15,779
Other long-term liabilities:		
Social Security employer deferral	$ —	$ 980
Other	—	1
	$ —	$ 981

Note 7 Shareholder's Equity

Our authorized capital stock consists of 100 shares of common stock, $0.01 par value per share. As of December 31, 2021 and 2020, all shares of our common stock were issued and outstanding and held by BioReference.

Note 8 Debt Guarantee

On November 5, 2015, BioReference and certain of its subsidiaries, including GeneDx, entered into a credit agreement with JPMorgan Chase Bank, N.A. ("CB"), as lender and administrative agent, which was amended and restated on August 30, 2021 (the "A&R Credit Agreement"). The A&R Credit Agreement provides for a $75.0 million secured revolving credit facility and includes a $20.0 million sub-facility for swingline loans and a $20.0 million sub-facility for the issuance of letters of credit. The A&R Credit Agreement matures on August 30, 2024 and is guaranteed by all of BioReference and its domestic subsidiaries including GeneDx. The A&R Credit Agreement is also secured by substantially all assets of BioReference and its domestic subsidiaries, including GeneDx. Availability under the A&R Credit Agreement is based on a borrowing base composed of BioReference's eligible accounts receivables, which includes GeneDx, as specified therein. As of December 31, 2021, there was no outstanding balance and as of December 31, 2020, $7.1 million was outstanding under the A&R Credit Agreement.

At BioReference's option, borrowings under the A&R Credit Agreement (other than swingline loans) will bear interest at (i) the CB floating rate (defined as the higher of (a) the prime rate and (b) the LIBOR rate (adjusted for statutory reserve requirements for Eurocurrency liabilities) for an interest period of one month plus 2.50%) plus an applicable margin of 0.75% or (ii) the LIBOR rate (adjusted for statutory reserve requirements for Eurocurrency liabilities) plus an applicable margin of 1.75%. Swingline loans will bear interest at the CB floating rate plus the applicable margin. The A&R Credit Agreement also calls for other customary fees and charges, including an unused commitment fee of 0.375% if the average quarterly availability is 50% or more of the revolving commitment, or 0.25% if the average quarterly availability is less than or equal to 50% of the revolving commitments.

As of December 31, 2021, $64.8 million remained available to BioReference for borrowing under the A&R Credit Agreement.

Note 9 Income Taxes

Our Carve Out Financial Statements and related disclosures apply the Separate Return Method and recognize the current and deferred income tax consequences that result from our activities during the current and preceding periods pursuant to the provisions of Accounting Standards Codification Topic 740, Income Taxes (ASC 740), as if we were a separate taxpayer rather than a member of OPKO's consolidated income tax return. In 2021 and 2020, the difference between our separate company income tax benefit and cash flows attributable to income taxes have been recognized as capital contributions from BioReference.

We operate and are required to file tax returns in the United States and Canada, as well as with various U.S. states.

The provision for income taxes consists of the following benefit (expense):

	For the years ended December 31,	
(In thousands)	**2021**	**2020**
Current		
Federal	$ —	—
State	(4)	(23)
Foreign	(75)	(180)
	(79)	(203)
Deferred		
Federal	10,382	9,838
State	2,244	2,402
	12,626	12,240
Total income tax benefit, net	$ 12,547	$ 12,037

Deferred income tax assets and liabilities as of December 31, 2021 and 2020 consist of the following:

(In thousands)	For the year ended December 31, 2021	2020
Deferred income tax assets:		
Accruals	$ 16	$ 427
Stock options	1,361	949
Lease liability	2,467	1,819
Federal net operating losses	14,237	6,433
State net operating losses	3,444	1,576
Other	276	517
Total deferred income tax assets	21,801	11,721
Deferred income tax liabilities:		
Intangible assets	(41,327)	(45,319)
Fixed assets	(1,572)	(752)
Lease assets	(2,215)	(1,699)
Other	(750)	(641)
Deferred income tax liabilities	(45,864)	(48,411)
Net deferred income tax liabilities	$ (24,063)	$ (36,690)

As of December 31, 2021, we had tax-effected federal and state net operating loss carryforwards of approximately $14.2 million and $3.4 million respectively, which expire in varying amounts and various dates through 2041 unless indefinite in nature. While the Company on a separate return method has net operating losses, these net operating losses have been absorbed by OPKO. As of each reporting date, we evaluated the realization of our U.S. and Canadian deferred tax assets and have determined that all deferred tax assets will more likely than not be realized and no valuation allowance is required. We file federal income tax returns in the U.S. and Canada, as well as with various U.S. states. We are subject to routine tax audits in all jurisdictions for which we file tax returns. Tax audits by their very nature are often complex and can require several years to complete.

U.S. Federal: Under the tax statute of limitations applicable to the Internal Revenue Code, we are no longer subject to U.S. federal income tax examinations by the Internal Revenue Service for tax years before 2018.

State: Under the statutes of limitation applicable to most state income tax laws, we are no longer subject to state income tax examinations by tax authorities for years before 2017 in states in which we have filed income tax returns. Certain states may take the position that we are subject to income tax in such states even though we have not filed income tax returns in such states and, depending on the varying state income tax statutes and administrative practices, the statutes of limitations in such states may extend to years before 2017.

Foreign: Under the statutes of limitations applicable to our operations in Canada, we are generally no longer subject to tax examination for years before 2018 in jurisdictions where we have filed income tax returns.

Other Income Tax Disclosures

The significant elements contributing to the difference between the federal statutory tax rate and the effective tax rate are as follows:

	For the years ended December 31,	
	2021	2020
Federal statutory rate	21.0 %	21.0 %
State income taxes, net of federal benefit	5.0 %	5.1 %
Rate change	(0.5)%	(0.1)%
Permanent differences	(0.1)%	(0.1)%
Income tax refunds	0.0 %	0.0 %
Other	0.0 %	(0.2)%
Total	25.4 %	25.7 %

On December 22, 2017, the 2017 Tax Cuts and Jobs Act (the "Tax Act") was enacted into law and the new legislation contained several key tax provisions, including a reduction of the corporate income tax rate from 35% to 21% effective January 1, 2018. We were required to recognize the effect of the tax law changes in the period of enactment, such as remeasuring our U.S. deferred tax assets and liabilities, as well as reassessing the net realizability of our deferred tax assets and liabilities.

Prior to the enactment of the Tax Act, we regularly determined the undistributed earnings in Canada to be indefinitely reinvested outside the United States. Our intent is to permanently reinvest these funds outside the U.S. and our current plans do not demonstrate a need to repatriate the cash to fund U.S. operations. However, if these funds were repatriated, we would be required to accrue and pay applicable U.S. taxes (if any) and withholding taxes payable to foreign tax authorities.

Note 10 Related Party Transactions

Dr. Roger Medel, a director of OPKO as of December 18, 2020, is the former Chief Executive Officer of Pediatrix. Dr. Medel continues to serve on the board of Pediatrix.

Note 11 Employee Benefit Plans

Effective January 1, 2017, employees of GeneDx were eligible for participation in the OPKO Health Savings and Retirement Plan (the "Plan"). The Plan permits employees to contribute up to 100% of qualified pre-tax annual compensation up to annual statutory limitations. The discretionary company match for employee contributions to the Plan is 100% up to the first 4% of the participant's earnings contributed to the Plan. Our matching contributions to our plans, including our predecessor plans, was $1.9 million for the year ended December 31, 2021 and $1.7 million for the year ended December 31, 2020.

Note 12 Commitments and Contingencies

On October 11, 2019, GeneDx received a letter from the Centers for Medicare and Medicaid Services ("CMS"), notifying GeneDx of CMS's determination to suspend Medicare payments to GeneDx, which suspension became effective on September 27, 2019. CMS advised that it suspended payments due to possible overpayments to GeneDx in connection with reimbursement claims for genetic testing services based on a diagnosis of family history of cancer, which testing CMS has alleged is not covered by Medicare under the applicable provisions of the Social Security Act on the basis that such testing is not reasonable and necessary for the diagnosis or treatment of illness or injury. CMS lifted the suspension on February 3, 2020 and issued an extrapolated overpayment finding of approximately $576,332, which GeneDx paid.

In September 2018, GeneDx received two document request letters from Cigna's Special Investigations Unit in connection with claims submitted for laboratory services performed on Cigna members by GeneDx. Cigna requested records and other documentation for 100 individual members for which GeneDx had submitted claims. The parties

negotiated a final settlement agreement in January 2021 that included a $500,000 payment from GeneDx to Cigna without any admission of error or liability and a mutual release of any and all claims prior to the execution of the settlement agreement.

We accrue a liability for legal contingencies when we believe that it is both probable that a liability has been incurred and that we can reasonably estimate the amount of the loss. We review established accruals and adjust them to reflect ongoing negotiations, settlements, rulings, advice of legal counsel and other relevant information. To the extent new information is obtained and our views on the probable outcomes of claims, suits, assessments, investigations or legal proceedings change, changes in our accrued liabilities would be recorded in the period in which such determination is made. For the matters referenced in the paragraph below, the amount of liability is not probable, or the amount cannot be reasonably estimated; and, therefore, accruals have not been made. In addition, in accordance with the relevant authoritative guidance, for matters which the likelihood of material loss is at least reasonably possible, we provide disclosure of the possible loss or range of loss; however, if a reasonable estimate cannot be made, we will provide disclosure to that effect.

From time to time, we may receive inquiries, document requests, Civil Investigative Demands ("CIDs") or subpoenas from the Department of Justice, the Office of Inspector General and Office for Civil Rights ("OCR") of the Department of Health and Human Services, the Centers for Medicare and Medicaid Services, various payors and fiscal intermediaries, and other state and federal regulators regarding investigations, audits and reviews. In addition to the matters discussed in this note, we are currently responding to CIDs, subpoenas or document requests for various matters relating to our laboratory operations. Some pending or threatened proceedings against us may involve potentially substantial amounts as well as the possibility of civil, criminal, or administrative fines, penalties, or other sanctions, which could be material. Settlements of suits involving the types of issues that we routinely confront may require monetary payments as well as corporate integrity agreements. Additionally, qui tam or "whistleblower" actions initiated under the civil False Claims Act may be pending but placed under seal by the court to comply with the False Claims Act's requirements for filing such suits. Also, from time to time, we may detect issues of non-compliance with federal healthcare laws pertaining to claims submission and reimbursement practices and/or financial relationships with physicians, among other things. We may avail ourselves of various mechanisms to address these issues, including participation in voluntary disclosure protocols. Participating in voluntary disclosure protocols can have the potential for significant settlement obligations or even enforcement action. The Company generally has cooperated, and intends to continue to cooperate, with appropriate regulatory authorities as and when investigations, audits and inquiries arise.

We are a party to other litigation in the ordinary course of business. While we cannot predict the ultimate outcome of legal matters, we accrue a liability for legal contingencies when we believe that it is both probable that a liability has been incurred and that we can reasonably estimate the amount of the loss. It is reasonably possible the ultimate liability could exceed amounts currently estimated and we review established accruals and adjust them to reflect ongoing negotiations, settlements, rulings, advice of legal counsel and other relevant information. To the extent new information is obtained and our views on the probable outcomes of claims, suits, assessments, investigations or legal proceedings change, changes in our accrued liabilities would be recorded in the period in which such determination is made. Because of the high degree of judgment involved in establishing loss estimates, the ultimate outcome of such matters could be material to our business, financial condition, results of operations, and cash flows.

We have employment agreements with certain executives that provide for compensation and certain other benefits and for severance payments under certain circumstances. During the years ended December 31, 2021 and 2020, we recognized $0.3 million and $0.2 million, respectively, of severance costs pursuant to employment agreements with former executives as a component of selling, general and administrative expense.

On December 31, 2021, we were committed to make future purchases for inventory and other items in 2022 that occur in the ordinary course of business under various purchase arrangements with fixed purchase provisions aggregating $14.5 million.

We maintain medical malpractice insurance coverage at a level in excess of historical claims.

Note 13 Revenue Recognition

Revenue for laboratory services is recognized at the time test results are reported, which approximates when services are provided, and the performance obligations are satisfied. Services are provided to patients covered by various third-party payor programs including various managed care organizations, as well as Medicare and Medicaid programs. Billings for services are included in revenue net of allowances for explicit price concessions, and implicit price concessions provided to uninsured patients which are all elements of variable consideration.

The following are descriptions of our payors for laboratory services:

Healthcare Insurers. Reimbursements from healthcare insurers are based on negotiated fee-for-service schedules. Revenues consist of amounts billed, net of explicit price concessions and implicit price concessions for differences between amounts billed and the estimated consideration we expect to receive from such payors, which considers historical denial and collection experience and the terms of our contractual arrangements. Adjustments to the allowances, based on actual receipts from the third-party payors, are recorded upon settlement.

Government Payors. Reimbursements from government payors are based on fee-for-service schedules set by governmental authorities, including traditional Medicare and Medicaid. Revenues consist of amounts billed, net of explicit price concessions and implicit price concessions for differences between amounts billed and the estimated consideration we expect to receive from such payors, which considers historical denial and collection experience and the terms of our contractual arrangements. Adjustments to the allowances, based on actual receipts from the government payors, are recorded upon settlement.

Client Payors. Client payors include physicians, hospitals, employers, and other institutions for which services are performed on a wholesale basis and are billed and recognized as revenue based on negotiated fee schedules.

Patients. Uninsured patients are billed based on established patient fee schedules or fees negotiated with physicians on behalf of their patients. Insured patients (including amounts for coinsurance and deductible responsibilities) are billed based on fees negotiated with healthcare insurers. Collection of billings from patients is subject to credit risk and ability of the patients to pay. Revenues consist of amounts billed net of discounts provided to uninsured patients in accordance with our policies and implicit price concessions. Implicit price concessions represent differences between amounts billed and the estimated consideration that we expect to receive from patients, which considers historical collection experience and other factors including current market conditions. Adjustments to the estimated allowances, based on actual receipts from the patients, are recorded upon settlement.

The complexities and ambiguities of billing, reimbursement regulations and claims processing, as well as issues unique to Medicare and Medicaid programs, require us to estimate the potential for retroactive adjustments as an element of variable consideration in the recognition of revenue in the period the related services are rendered. Actual amounts are adjusted for the period in which those adjustments become known. For the years ended December 31, 2021 and 2020, revenue reductions due to changes in estimates of implicit price concessions for performance obligations satisfied in prior periods of $4.2 million and $5.0 million, respectively, were recognized.

Third-party payors, including government programs, may decide to deny payment or recoup payments for testing they contend were improperly billed or not medically necessary, against their coverage determinations, or for which they believe they have otherwise overpaid (including as a result of their own error), and we may be required to refund payments already received. Our revenues may be subject to retroactive adjustment as a result of these factors among others, including without limitation, differing interpretations of billing and coding guidance and changes by government agencies and payors in interpretations, requirements, and “conditions of participation” in various programs. We have processed requests for recoupment from third-party payors in the ordinary course of our business, and it is likely that we will continue to do so in the future. If a third-party payer denies payment for testing or recoups money from us in a later period, reimbursement revenue for our testing could decline.

As an integral part of our billing compliance program, we periodically assess our billing and coding practices, respond to payor audits on a routine basis, and investigate reported failures or suspected failures to comply with federal and state healthcare reimbursement requirements, as well as overpayment claims which may arise from time to time without fault on the part of the Company. We may have an obligation to reimburse Medicare, Medicaid, and

third-party payors for overpayments regardless of fault. We have periodically identified and reported overpayments, reimbursed payors for overpayments and taken appropriate corrective action.

Settlements with third-party payors for retroactive adjustments due to audits, reviews or investigations are also considered variable consideration and are included in the determination of the estimated transaction price for providing services. These settlements are estimated based on the terms of the payment agreement with the payor, correspondence from the payor and our historical settlement activity, including an assessment of the probability a significant reversal of cumulative revenue recognized will occur when the uncertainty is subsequently resolved. Estimated settlements are adjusted in future periods as adjustments become known (that is, new information becomes available), or as years are settled or are no longer subject to such audits, reviews, and investigations. As of December 31, 2021 and 2020, we had liabilities of $0.0 million and $1.5 million, respectively, within Accrued expenses related to reimbursements for payor overpayments.

The composition of Revenue by payor for the years ended December 31, 2021 and 2020 is as follows:

(In thousands)	2021	2020
Healthcare insurers	$ 47,175	$ 35,314
Government payors	15,596	9,687
Client payors	52,047	47,326
Patients	1,777	2,693
Total revenue	$ 116,595	$ 95,020

Note 14 Leases

We have an operating lease for office space and laboratory operations. We determine if a contract contains a lease at inception or modification of a contract. Our lease does not provide an implicit interest rate, and we therefore use our incremental borrowing rate as the discount rate when measuring operating lease liability. The incremental borrowing rate represents an estimate of the interest rate we would incur, calculated at the Parent level, at lease commencement to borrow an amount equal to the lease payments on a collateralized basis over the term of the lease within a particular currency environment. We used the incremental borrowing rate as of January 1, 2019 for this operating lease. We factored into our determination of the lease payments any rental escalation, renewal options, and/or termination options as appropriate. Variable lease payment amounts that cannot be determined at the commencement of the lease are not included in the right-to-use assets or liabilities.

We elected the use of permitted practical expedients of not recording leases on our Combined Balance Sheet when the leases have terms of 12 months or less, and we elected not to separate nonlease components from lease components and instead account for each separate lease component and the nonlease components associated with that lease component as a single lease component.

The following table presents the lease balances within the Combined Balance Sheet as of December 31, 2021:

(in thousands)	Classification on the Balance Sheet	December 31, 2021	December 31, 2020
Assets			
Operating lease assets	Operating lease right-of-use assets	$ 5,789	$ 6,858
Liabilities			
Current			
Operating lease liabilities	Current maturities of operating leases	—	—
Long-term			
Operating lease liabilities	Operating lease liabilities	9,936	7,340
Weighted average remaining lease term			
Operating leases		10 years	11 years
Weighted average discount rate			
Operating leases		7.2 %	7.2 %

The following table reconciles the undiscounted future minimum lease payments (displayed by year and in the aggregate) under noncancelable operating leases with terms of more than one year to the total operating lease liabilities recognized on our Combined Balance Sheet as of December 31, 2021:

Year Ending	(In thousands)
2022	$ (396)
2023	1,048
2024	1,659
2025	1,715
2026	1,773
Thereafter	9,116
Total undiscounted future minimum lease payments	$ 14,915
Less: Difference between lease payments and discounted lease liabilities	4,979
Total lease liabilities	$ 9,936

The minimum lease payments above include tenant improvement payments of $2.0 million and $0.6 million for the years ended 2022 and 2023, respectively. We conduct certain of our operations under operating lease agreements. Rent expense under operating leases was approximately $1.3 million for the year ended December 31, 2021 and $0.9 million for the year ended December 31, 2020.

Supplemental cash flow information is as follows:

	For the years ended December 31,	
(in thousands)	2021	2020
Operating cash out flows from operating leases	$ 479	$ 801
Total	$ 479	$ 801

Note 15 Selected Quarterly Financial Data (Unaudited)

	For the 2021 Quarters Ended			
(In thousands)	**March 31**	**June 30**	**September 30**	**December 31**
Total revenues	$ 23,159	$ 29,987	$ 30,351	$ 33,098
Total costs and expenses, net	35,787	35,098	36,020	46,582
Net loss	(12,628)	(5,111)	(5,669)	(13,484)

	For the 2020 Quarters Ended			
(In thousands)	**March 31**	**June 30**	**September 30**	**December 31**
Total revenues	$ 32,101	$ 23,365	$ 19,289	$ 20,265
Total costs and expenses, net	34,875	31,065	34,903	29,080
Net loss	(2,774)	(7,700)	(15,614)	(8,815)

Note 16 Subsequent Events

We have reviewed all subsequent events and transactions that occurred after the date of our December 31, 2021 Combined Carve Out Balance Sheet date up through March 15, 2022, which is the date that the Combined Financial Statements were available to be issued, noting no items that required adjustment or disclosures in the Combined Carve Out Financial Statements, except for, the January 2022 announcement by Sema4 Holdings Corp. (“Sema4”) and OPKO that they had signed a definitive agreement pursuant to which Sema4 has agreed to acquire GeneDx, subject to the satisfaction of customary closing conditions (the “GeneDx Transaction”). The GeneDx Transaction is expected to close in the second quarter of 2022.