Filed Pursuant to Rule 424(b)(4)
Registration No. 333-254760

Prospectus

6,580,000 Shares

Akoya Biosciences, Inc.

Common Stock

This is the initial public offering of shares of common stock of Akoya Biosciences, Inc. All of the 6,580,000 shares of common stock being sold in this offering are being sold by us.

Prior to this offering, there has been no public market for our common stock. The initial public offering price per share is $20.00. Our common stock has been approved for listing on the Nasdaq Global Select Market ("Nasdaq") under the symbol "AKYA."

We are an "emerging growth company" and a "smaller reporting company" as defined under the federal securities laws, and as such, we have elected to comply with certain reduced reporting requirements for this prospectus and may elect to do so in future filings.

Investing in our common stock involves a high degree of risk. See "Risk Factors" beginning on page 12 to read about factors you should consider before buying shares of our common stock.

Neither the Securities and Exchange Commission (the "SEC") nor any other regulatory body has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

	Per Share	Total
Initial public offering price	$20.00	$131,600,000
Underwriting discounts and commissions(1)	$1.40	$9,212,000
Proceeds, before expenses, to Akoya Biosciences, Inc.	$18.60	$122,388,000

(1) We have agreed to reimburse the underwriters for certain FINRA-related expenses. See "Underwriting" for additional information regarding compensation payable to the underwriters.

We have granted the underwriters an option for a period of 30 days from the date of this prospectus to purchase up to an additional 987,000 shares of common stock from us at the initial public offering price less the underwriting discounts and commissions.

The underwriters expect to deliver the shares of common stock to purchasers against payment on April 20, 2021.

Joint Book-Running Managers

J.P. Morgan **Morgan Stanley** **Piper Sandler** **Canaccord Genuity**

Prospectus dated April 15, 2021.

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We have not, and the underwriters have not, authorized anyone to provide you with different information or to make any other representations, and we and the underwriters take no responsibility for, and can provide no assurance as to the reliability of, any other information others may give you. We are offering to sell, and seeking offers to buy, shares of our common stock only under circumstances and in jurisdictions where it is lawful to do so. We are not, and the underwriters are not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should not assume that the information contained in this prospectus is accurate as of any date other than its date. Our business, financial condition, results of operations and prospects may have changed since that date.

For investors outside the United States: Neither we nor the underwriters have done anything that would permit this offering or the possession or distribution of this prospectus in any jurisdiction where action for those purposes is required, other than in the United States. Persons outside of the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the shares of our common stock and the distribution of this prospectus outside of the United States.

Market and Industry Data

We use market and industry data, forecasts and projections throughout this prospectus. We have obtained certain market and industry data from publicly available industry publications. These sources generally state that the information they provide has been obtained from sources believed to be reliable, but that the accuracy and completeness of the information are not guaranteed. The forecasts and projections are based on historical market data, and there is no assurance that any of the forecasts or projected amounts will be achieved. The market and industry data used in this prospectus involve risks and uncertainties that are subject to change based on various factors, including the COVID-19 pandemic and those discussed in the

section titled “Risk Factors.” These and other factors could cause results to differ materially from those expressed in, or implied by, the estimates made by independent parties and by us. Furthermore, we cannot assure you that a third party using different methods to assemble, analyze or compute industry and market data would obtain the same results.

Trademarks and Tradenames

We own various U.S. federal trademarks and unregistered trademarks, including our company name, logo and solution names and other trade or service marks. All other trademarks or trade names referred to in this prospectus are the property of their respective owners. Solely for convenience, the trademarks and trade names in this prospectus are referred to without the symbols® and ™, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto.

PROSPECTUS SUMMARY

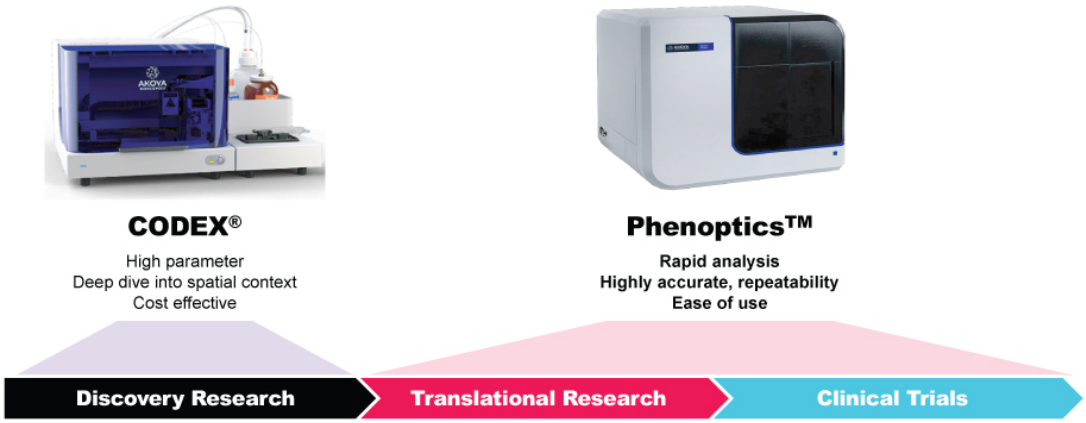
This summary highlights selected information that is presented in greater detail elsewhere in this prospectus. This summary does not contain all of the information you should consider before investing in our common stock. Before investing in our common stock, you should read this entire prospectus carefully, including the sections titled "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations," and our consolidated financial statements and the related notes included elsewhere in this prospectus before making an investment decision. Some of the statements in this prospectus constitute forward-looking statements that involve risks and uncertainties. See the section entitled "Special note regarding forward-looking statements." Unless the context otherwise requires, the terms "Akoya," "we," "us" and "our" refer to Akoya Biosciences, Inc. together with its consolidated subsidiary.

Overview

We are an innovative life sciences technology company delivering spatial biology solutions focused on transforming discovery and clinical research. Our mission is to deliver a revolutionary new class of spatially derived biomarkers that empower life sciences researchers to better understand disease and clinicians to improve patient outcomes. Spatial biology refers to a rapidly evolving technology that enables academic and biopharma scientists to detect and map the distribution of cell types and biomarkers across whole tissue samples at single cell resolution, enabling advancements in their understanding of disease progression and patient response to therapy. Through our CODEX and Phenoptics platforms, reagents, software and services, we offer end-to-end solutions to perform tissue analysis and spatial phenotyping across the full continuum, from discovery through translational and clinical research.

Our spatial biology solutions measure cells and proteins by providing biomarker data in its spatial context while preserving tissue integrity. Biomarkers are objective measures that capture what is happening in a cell or tissue at a given moment. Current genomic and proteomic methods, such as next-generation sequencing (NGS), single-cell analysis, flow cytometry and mass spectrometry, are providing meaningful data but require the destruction of the tissue sample for analysis. While valuable and broadly adopted, these approaches allow scientists to analyze the biomarkers and cells that comprise the tissue but do not provide the fundamental information about tissue structure, cellular interactions and the localized measurements of key biomarkers. Furthermore, current non-destructive tissue analysis and histological methods provide some limited spatial information, but they only measure a minimal number of biomarkers at a time and require expert pathologist interpretation. Our platforms address these limitations by providing end-to-end solutions that enable researchers to quantitatively interrogate a large number of biomarkers and cell types across a tissue section at single cell resolution. The result is a detailed and computable map of the tissue sample that thoroughly captures the underlying tissue dynamics and interactions between key cell types and biomarkers, a process now referred to as spatial phenotyping. We believe that we are the only business with the breadth of platform capabilities that enable researchers to do a deep exploratory and discovery study, and then further advance and scale their study through translational and clinical phases, thereby helping to provide a broad scope of understanding of human biology, disease progression and response to therapy.

We offer two distinct platforms for spatial phenotyping, each designed to serve the unique needs of our customers in the discovery, translational and clinical markets. The first, CODEX, is an ultra-high parameter and cost-effective platform ideally suited for discovery research with the ability to identify more than 40 biomarkers in a tissue sample. The second, Phenoptics, is a high-throughput platform with the automation and robustness needed for translational and clinical applications. Both offer seamless and integrated workflow solutions for our customers, including important benefits such as flexible sample types, automated sample processing, scalability, comprehensive data analysis and software solutions and dedicated field and applications support. With these platforms, our customers are performing spatial phenotyping to further advance their understanding of diseases such as cancer, neurological and autoimmune disorders, and many other therapeutic areas.



Our co-founder and director, Dr. Garry Nolan, originally developed our CODEX technology to better identify biomarkers in discovery research while leading a team at the Leland Stanford Junior University, or Stanford. We license certain patents, know-how and proprietary technology utilized in our CODEX platform from Stanford. In order to expand our offerings to the translational and clinical markets, we acquired our Phenoptics platform in 2018 from PerkinElmer Health Sciences, Inc., or PKI, from whom we license certain patents incorporated into our Phenoptics platform.

As of December 31, 2020, we have over 550 instruments installed across a broad group of customers throughout North America, Europe and APAC, reflecting an increase of 27% in the number of instrument placements over 2019. We generated total revenue of $42.2 million in the year ended December 31, 2019 and $42.4 million in the year ended December 31, 2020, successfully managing through significant COVID-19 headwinds, realizing year-over-year growth and minimizing losses through cost containment. We have incurred net losses since inception, including net losses of $14.8 million for the year ended December 31, 2019 and $16.7 million for the year ended December 31, 2020.

Our Competitive Strengths

We believe the growth of our business will be propelled by our competitive strengths, including:

- **Established leader in the spatial biology market with a strong competitive position and proven products.** We believe we are the leading spatial biology company, offering products to hundreds of customers across a diverse base, including leading biopharma companies, academic research centers and governmental institutions worldwide.
- **Comprehensive solutions that address the entire continuum.** We have a purpose-built portfolio offering instruments, consumables, related software and services to help serve the unique needs of our customers from discovery through translational and clinical research.
- **Relationships with leading biopharma companies, top research institutions and medical centers.** We have relationships with thought leaders such as Dana Farber Cancer Institute, Johns Hopkins University, University of California San Francisco (UCSF), and MD Anderson, and many other leading biopharma companies, top research institutions and medical centers and contract research organizations.
- **Large, addressable and rapidly evolving market.** We believe the spatial biology market is in its nascent stages. The market is currently estimated to be $17 billion and growing and spans discovery through translational and clinical research.
- **Our people.** Our success begins with our people. All of our employees contribute to keeping us at the forefront of the spatial biology market, from research and development, to sales and marketing, and operations and management.

Our Growth Strategy

Our growth strategy includes the following key elements:

- **Enhance sales and marketing efforts to drive adoption of our solutions with new and existing customers**. To capitalize on the demand for spatial analysis solutions and drive adoption of our platforms across the entire market continuum, we intend to invest heavily to expand our sales and marketing organizations and increase the scale of our outbound marketing activities.
- **Invest in new applications, content development and workflow improvements to drive pull through**. Our research and development team is dedicated to continuously developing and improving our instruments, reagents menu and software solutions, and delivering a full end-to-end workflow to our customers. As we identify and launch new solutions, we expect to drive incremental reagent and software revenue from existing and new customers.
- **Continued expansion of next-gen cloud-based data analysis and collaboration platform**. Spatial analysis of tissue generates large and complex image data per sample. Therefore, addressing the big data challenge and delivering next-generation automated intelligence analysis methods will be a key customer need in spatial biology. Our cloud-based Proxima software is an open solution designed to meet both requirements by enabling the storage, sharing, analysis, and visualization of spatial phenotyping images and experimental results generated on our platforms.
- **Investment in clinical developments to demonstrate validity**. Our collaborations with key opinion leaders in major cancer institutions, universities and large biopharma customers enables us to participate directly in the advancement of our platform from translational research to future potential clinical use. Partnerships such as those with UCSF, Johns Hopkins and Dana Farber Cancer Institute drive the demonstration and validation of the clinical utility of our platform. In partnership with these and other key opinion leaders, we believe we will establish industry standards that further solidify our platform as the go-to clinical spatial biology solution.

Industry and Market Opportunity

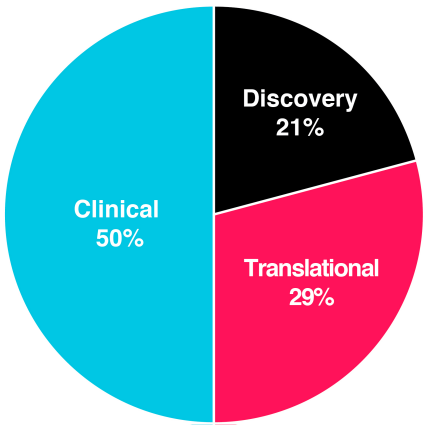
Genomics analysis techniques have evolved from bulk genomics to single-cell analysis, and proteomics techniques such as mass spectrometry are advancing to provide cutting-edge unbiased approaches. In parallel, there is a growing need in areas such as immuno-oncology for biomarkers that are more predictive of a patient's response to therapy. Spatial biology has emerged as a potential answer to these needs and represents one of the next major frontiers in life sciences research. It has become a key area of focus for researchers and clinicians as spatial phenotyping is able to measure protein and cellular interactions, while maintaining spatial context within a selected tissue sample. The result is a visual and computable measurement of histological patterns and an in-depth understanding of disease pathology, adding a new dimension of insights from discovery through clinical and translational research. By providing single-cell resolution with spatial context within a single platform, researchers are able to achieve an understanding of how even small subpopulations of cells can play pivotal roles in disease pathology and patient outcome. In addition, recent innovations within proteomics have enabled unprecedented identification of novel proteins, expanding the need for spatial biology platforms that can functionally characterize these newly discovered proteins.

While spatial biology has many applications, spanning from discovery through translational and clinical research, the leading applications today include:

- *Immuno-oncology:* profiling of a tumor and its microenvironment.
- *Immunology:* supporting sub-specialties such as autoimmune disorders and transplant medicine.
- *Neuroscience:* characterizing neuroinflammation and neurodegeneration.
- *Infectious disease*: understanding the underlying biology of infectious diseases and immune response.
- *Developmental biology:* understanding tissue differentiation and stem cell biology to inform cell therapy development.
- *Dermatology:* immunophenotyping atopic dermatitis, psoriasis and similar dermatological conditions.

The spatial biology market sits within a larger life sciences technology market. Within this market, spatial biology is currently estimated to be over $17 billion across the discovery, translational and clinical research markets. The market for spatial biology encompasses the full research and drug development continuum, ranging from discovery through translational and clinical research. Each of these specific market segments have unique application and workflow needs and require fit for purpose product offerings. Today, our products and solutions are primarily sold into the cancer discovery and translational markets, representing a $5 billion addressable market. We believe that our offerings can be readily extended to serve adjacent application areas, including immunology and neurobiology, and as well applications in clinical markets, certain of which may require obtaining FDA approval for our products. We currently estimate that within the spatial biology market, half of the opportunity is in the discovery and translational research markets and the other half is in the clinical market. With the growing adoption and innovation of spatial biology solutions and as spatial phenotyping is further validated through rapid acceleration of peer-reviewed publications, we believe the global total addressable market ("TAM") will continue to grow over the near and long-term horizon. Given the critical need for spatial biology, we believe our products are uniquely suited to address the specific needs of researchers across this continuum from discovery through translational and clinical markets.

Current spatial biomarker market for cancer, immunology and neurobiology >$17bn



Market Needs

While discovery researchers currently have access to a range of tools that enable genomic, proteomic and cellular analysis, existing technologies are limited in their ability to provide spatial information within a tissue sample. In recent years, the research community has fully embraced single-cell solutions as they have delivered unprecedented insights and facilitated novel medical breakthroughs. However, while single-cell technologies continue to evolve and improve, providing insights into cellular makeup and biomarker expression, existing technologies require destruction of the tissue and sacrifice all spatial information. Thus, while significant value has been realized from single-cell analysis, spatial phenotyping promises to be the next-generation biomarker solution aiming to provide an in-depth understanding of biological function and disease pathology through a visual and computable map of histological patterns.

Translational and clinical researchers are facing a growing need in areas such as immuno-oncology for additional biomarkers that can accurately predict a patient's response to therapy. The rapid growth of immuno-therapies and the heightened demand for more predictive biomarkers creates a strong market opportunity for spatial biology platforms. A recent study in JAMA Oncology highlighted the superior predictive power of spatial phenotyping over current methods such as NGS, RNA analysis and standard histology and tissue staining approaches.

With growing adoption and utilization, spatial phenotyping has the potential to change the course of clinical decision making. Our solutions' ability to address the full continuum from discovery through translational and clinical research is driving a deeper understanding of the onset, advancement and treatment of complex diseases such as cancer, autoimmune disorders, neurological disorders, infectious disease, developmental biology, hematological conditions, and many more. Both our CODEX and Phenoptics platforms offer seamless and integrated workflow solutions for customers, including supporting both fresh frozen and formalin-fixed paraffin-embedded ("FFPE") tissue, automated sample processing, scalability and comprehensive data analysis and software solutions, all supported by our dedicated field and applications support teams. For discovery researchers in academia and biopharma, our CODEX platform and proprietary reagents provide a next-generation tissue imaging solution with ultra-high parameter multiplexing that is practical, automated and simple enough to enable every researcher to leverage the power of spatial biology. For translational and clinical researchers, we believe our Phenoptics platform delivers a fully automated end-to-end spatial phenotyping solution with the robustness, throughput, scale and reproducibility required for clinical studies. All of our products and solutions sold today are for research use only. For future applications in clinical markets, our products may require FDA approval.

Recent Developments

Preliminary Financial Results

Set forth below are selected preliminary consolidated financial results for the fiscal three months ended March 31, 2021. Our consolidated financial results for the fiscal three months ended March 31, 2021 are not yet available. The following information reflects our preliminary estimates with respect to such results based on information available as of the date of this prospectus and is subject to change. We have provided ranges, rather than specific amounts, for the preliminary results described below primarily because our financial closing procedures for the fiscal three months ended March 31, 2021 are not yet completed. Actual results are not expected to differ materially from those reflected herein.

For the three months ended March 31, 2021, we expect revenues to be between $12.0 million and $12.2 million. The increase compared to the prior year period is primarily due to increases in consumable sales and instrument service revenue.

For the three months ended March 31, 2021, we expect net loss to be between $7.5 million and $8.5 million, including the loss relating to non-cash items totaling between $2.5 million and $3.0 million of a) change in fair value of warrant liability, b) stock-based compensation expense, and c) change in fair value of contingent consideration. The change in fair value of warrant liability and stock-based compensation expense is primarily driven by the significant increase in the fair value of our common stock subsequent to December 31, 2020. The change in fair value of contingent consideration is driven by current period remeasurement.

The selected preliminary consolidated financial data presented above for the fiscal three months ended March 31, 2021 is preliminary, is not a comprehensive statement of our financial results and is subject to completion of our financial closing procedures. Our actual results for the fiscal three months ended March 31, 2021 will not be available until after this offering is completed. Actual results are not expected to differ materially from those reflected herein. Further, our preliminary estimated results are not necessarily indicative of the results to be expected for the remainder of fiscal 2021 or any future period as a result of various factors, including, but not limited to, those discussed in the sections titled "Risk Factors" and "Cautionary Note Regarding Forward-Looking Statements." Accordingly, you should not place undue reliance upon these preliminary estimates.

This selected preliminary consolidated financial data has been prepared by, and is the responsibility of, our management. RSM US LLP has not audited, reviewed, compiled or applied agreed-upon procedures with respect to this preliminary consolidated financial data. Accordingly, RSM US LLP does not express an opinion or any other form of assurance with respect thereto.

Risk Factors

Investing in our common stock involves risks, which are discussed more fully under "Risk Factors." You should carefully consider all the information in this prospectus, including under "Risk Factors," before making an investment decision. These risks include, but are not limited to, risks relating to:

- our history of losses, and expectation to incur significant expenses and continuing losses for the foreseeable future;
- our ability to manage and grow our business by expanding our sales to existing customers or introducing our products and technologies to new customers;
- our dependency upon the biopharmaceutical industry's willingness to adopt our spatial biology platforms;
- the impact of health epidemics, including the COVID-19 pandemic, on our business and the actions we may take in response thereto;
- developments and projections relating to our competitors and industry;
- increases in costs, disruption of supply or shortage of raw materials, which could harm our business;
- our expectations about how market trends will affect our TAM;
- our dependence on our licenses with Stanford for our CODEX product and PKI, Cambridge Research & Instrumentation, Inc., or Cambridge Research, and VisEn Medical Inc. for our Phenoptics products and our and our licensors' ability to obtain, establish, maintain, protect and enforce intellectual property and proprietary protection for our products and technologies and to avoid claims of infringement, misappropriation or other violation of third-party intellectual property and proprietary rights;
- our ability to hire and retain key management, scientific and engineering personnel and to manage our future growth effectively;
- our ability to obtain additional financing in this or future offerings;
- the volatility of the trading price of our common stock;
- evolving regulations and the potential for unfavorable changes to, or failure by us to comply with, these regulations, which could harm our business and operating results;
- our expectations regarding the period during which we qualify as an emerging growth company under the JOBS Act; and
- our expectations regarding use of proceeds from this offering.

Implications of Being an Emerging Growth Company and Smaller Reporting Company

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

- Reduced obligations with respect to financial data, including presenting only two years of audited financial statements and only two years of selected financial data;
- An exemption from compliance with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act;
- Reduced disclosure about our executive compensation arrangements in our periodic reports, proxy statements, and registration statements; and
- Exemptions from the requirements of holding non-binding advisory votes on executive compensation or golden parachute arrangements.

In addition, under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards until such time as those standards apply to private companies. We intend to avail ourselves of this exemption from new or revised accounting standards, and accordingly, we will not be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies or that have opted out of using such extended transition period, which may make comparison of our financial statements with those of other public companies more difficult. We may take advantage of

these reporting exemptions until we no longer qualify as an emerging growth company or, with respect to adoption of certain new or revised accounting standards, until we irrevocably elect to opt out of using the extended transition period.

We will remain an emerging growth company until the earliest of (i) the last day of the fiscal year in which we have total annual gross revenues of $1.07 billion or more; (ii) the last day of our fiscal year following the fifth anniversary of the date of the closing of this offering; (iii) the date on which we have issued more than $1 billion in nonconvertible debt during the previous three years; and (iv) the date on which we are deemed to be a large accelerated filer under the rules of the SEC. We may choose to take advantage of some but not all of these reduced reporting burdens.

We are also a "smaller reporting company," meaning that the market value of our stock held by non-affiliates plus the proposed aggregate amount of gross proceeds to us as a result of this offering is less than $700 million and our annual revenue is less than $100 million during the most recently completed fiscal year. We may continue to be a smaller reporting company after this offering if either (i) the market value of our stock held by non-affiliates is less than $250 million or (ii) our annual revenue is less than $100 million during the most recently completed fiscal year and the market value of our stock held by non-affiliates is less than $700 million. If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. Specifically, as a smaller reporting company we may choose to present only the two most recent fiscal years of audited financial statements in our Annual Report on Form 10-K and, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

Corporate information

Akoya Biosciences, Inc. was incorporated as a Delaware corporation on November 13, 2015. Our principal executive offices are located at 100 Campus Drive, 6th Floor, Marlborough, Massachusetts 01752, and our telephone number is (855) 896-8401. Our website address is www.akoyabio.com. Information contained on, or that can be accessed through, our website is not part of and is not incorporated by reference into this prospectus, and you should not consider information on our website to be part of this prospectus.

The Offering	
Common stock offered by us	6,580,000 shares
Common stock to be outstanding immediately after this offering	35,689,344 shares (or 36,676,344 shares if the underwriters exercise in full their option to purchase additional shares)
Underwriters' option to purchase additional shares of common stock offered in this offering	We have granted the underwriters an option, exercisable for 30 days from the date of this prospectus, to purchase up to an additional 987,000 shares from us.
Use of proceeds	We estimate that the net proceeds to us from the sale of shares of our common stock in this offering will be approximately $119.9 million (or approximately $138.3 million if the underwriters' option to purchase additional shares is exercised in full) based upon the initial public offering price of $20.00 per share and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. The principal purposes of this offering are to increase our capitalization and financial flexibility, create a public market for our common stock and thereby enable access to the public equity markets for us and our stockholders. We expect to use the net proceeds from this offering for general corporate purposes, which may include, but are not limited to, expanding our commercial operations, funding our research and development efforts to advance our platform of technologies, capital expenditures and funding working capital. See "Use of Proceeds" for a more complete description of the intended use of proceeds from this offering.
Proposed Nasdaq trading symbol	"AKYA"
Risk factors	You should read the section entitled "Risk Factors" and the other information included elsewhere in this prospectus for a discussion of some of the risks and uncertainties you should carefully consider before deciding to invest in our common stock.

The total number of shares of our common stock that will be outstanding after this offering includes 29,109,344 shares and excludes, as of December 31, 2020:

- 3,920,487 shares of common stock issuable upon the exercise of outstanding stock options, having a weighted average exercise price of $0.51 per share;
- 158,274 shares of our common stock issuable upon the exercise of certain outstanding convertible preferred stock warrants, having an exercise price of $3.56 per share, and are expected remain unexercised after the completion of this offering;
- 1,727,953 shares of common stock reserved for future issuance under our 2021 Equity Incentive Plan (the "2021 Plan") ; and
- 172,795 shares of common stock reserved for future issuance under our 2021 Employee Stock Purchase Plan, or the ESPP, which will become effective in connection with this offering.

Our 2021 Plan and ESPP provide for annual automatic increases in the number of shares reserved thereunder. See the section titled "Executive Compensation — Equity Incentive Plans" for additional information.

Unless otherwise indicated, this prospectus assumes or gives effect to the following:

- the filing and effectiveness of our amended and restated certificate of incorporation to be effective immediately prior to the closing of this offering, or our Certificate of Incorporation, and the adoption of our amended and restated bylaws to be effective immediately prior to the closing of this offering, or our Bylaws;
- a 1 for 2.33 reverse stock split of our Class A Common Stock and Class B Common Stock effected on April 9, 2021;
- the conversion of all outstanding shares of our Class B common stock on a 1 for 1 basis into 2,563,765 shares of our common stock immediately prior to the closing of this offering;
- the automatic conversion of all outstanding shares of our convertible preferred stock into 26,545,579 shares of our common stock immediately prior to the closing of this offering;
- no exercise of the outstanding options or warrants described above; and
- no exercise by the underwriters of their option to purchase 937,500 additional shares of our common stock.

Summary Consolidated Financial Data

The following tables set forth a summary of our consolidated financial data for the periods and as of the dates indicated. The summary consolidated statements of operations data for the years ended December 31, 2020 and 2019 are derived from our audited consolidated financial statements and related notes included elsewhere in this prospectus. Our historical results are not necessarily indicative of our future results for any period. You should read this data together with our audited consolidated financial statements and related notes appearing elsewhere in this prospectus and the information under the captions "Selected consolidated financial data" and "Management's discussion and analysis of financial condition and results of operations." The summary financial data included in this section is not intended to replace the consolidated financial statements and related notes included elsewhere in this prospectus.

	Year ended December 31	
($ in thousands, except share and per share data)	**2020**	**2019**
Consolidated statements of operations		
Revenue:		
Product revenue	$ 33,438	$ 36,344
Service and other revenue	9,005	5,892
Total revenue	42,443	42,236
Cost of goods sold:		
Cost of product revenue	12,584	15,447
Cost of and other service revenue	3,951	2,126
Total cost of goods sold	16,535	17,573
Gross profit	25,908	24,663
Operating expenses:		
Selling, general and administrative	23,982	26,351
Research and development	9,603	8,761
Change in fair value of contingent consideration	519	(1,201)
Depreciation and amortization	3,815	3,055
Total operating expenses	37,919	36,966
Loss from operations	(12,011)	(12,303)
Other income (expense):		
Interest expense	(2,723)	(1,881)
Change in fair value of warrant liability	(298)	—
Loss on extinguishment of debt	(1,671)	—
Other income (expense), net	39	(373)
Loss before provision for income taxes	(16,664)	(14,557)
Provision for income taxes	(42)	(194)
Net loss	$ (16,706)	$ (14,751)
Net loss per share attributable to common stockholders, basic and diluted[(1)]	$ (9.18)	$ (8.04)
Weighted-average shares outstanding, basic and diluted[(1)]	2,370,574	2,276,048
Pro forma net loss per share attributable to common stockholders, basic and diluted[(1)]	$ (0.75)	—
Pro forma weighted-average common shares outstanding, basic and diluted[(1)]	28,916,153	—

(1) See Note 2 and Note 14 to our consolidated financial statements included elsewhere in this prospectus for further details on the calculation of net loss per share attributable to common stockholders, basic and diluted, and the weighted-average shares used to compute net loss per share attributable to common stockholders, basic and diluted, and unaudited pro forma information.

	As of December 31, 2020		
	Actual	Pro Forma[1]	Pro Forma As Adjusted[2]
		(in thousands)	
Consolidated Balance Sheet Data:			
Cash, cash equivalents, and restricted cash – long term	$ 17,508	$ 17,508	$137,396
Working capital[3]	11,534	11,534	131,422
Total assets	77,660	77,660	197,548
Deferred revenue	4,852	4,852	4,852
Current portion of long-term debt	1,032	1,032	1,032
Warrant Liability	490	—	—
Long-term debt, net of current portion and debt discount	33,488	33,488	33,488
Total redeemable convertible preferred stock	69,107	—	—
Convertible preferred stock	1,253	—	—
Accumulated deficit	(52,280)	(52,280)	(52,280)
Total stockholders' (deficit) equity	(51,026)	18,571	138,459

(1) The pro forma column reflects the automatic conversion of all outstanding shares of our convertible preferred stock as of December 31, 2020 into 29,109,334 shares of our common stock and the reclassification of the warrant liability to additional paid in capital (as the warrant will be exercisable into common stock immediately prior to the closing of this offering and will no longer meet the requirements of liability classification) immediately prior to the closing of this offering.

(2) The pro forma as adjusted column gives effect to (a) the pro forma adjustments set forth above; and (b) the sale and issuance of 6,580,000 shares of our common stock offered by us in this offering, based upon the initial public offering price of $20.0 per share and after deducting the underwriting discounts and estimated offering expenses payable by us.

(3) Working capital is calculated as current assets less current liabilities. See our consolidated financial statements and related notes included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should consider carefully the risks and uncertainties described below, together with all of the other information in this prospectus, including the section titled "Management's discussion and analysis of financial condition and results of operations" and our consolidated financial statements and related notes, before making a decision to invest in our common stock. Our business, results of operations, financial condition and prospects could also be harmed by risks and uncertainties that are not presently known to us or that we currently believe are not material. If any of the risks actually occur, our business, platform, reputation, brand, results of operations, financial condition and prospects could be materially and adversely affected. In such event, the market price of our common stock could decline, and you could lose all or part of your investment.

Risks Related to Our Business and Strategy

We have incurred significant losses since inception, we expect to incur losses in the future and we may not be able to generate sufficient revenue to achieve and maintain profitability.

We have incurred significant losses since our inception. For the years ended December 31, 2020 and 2019, we incurred net losses of $16.7 million and $14.8 million, respectively. As of December 31, 2020, we had an accumulated deficit of $52.3 million. We expect that our operating expenses will continue to increase as we grow our business and will also increase as a result of our becoming a public company. Since our inception, we have financed our operations primarily from private placements of our convertible preferred stock, the incurrence of indebtedness, and to a lesser extent, revenue derived from our CODEX and Phenoptics platforms. We have devoted substantially all of our resources to the development and commercialization of our CODEX and Phenoptics platforms and to research and development activities related to advancing and expanding our scientific and technological capabilities. We will need to generate significant additional revenue to achieve and sustain profitability, and even if we achieve profitability, we cannot be sure that we will remain profitable for any substantial period of time. We may never be able to generate sufficient revenue to achieve or sustain profitability and our recent and historical growth should not be considered indicative of our future performance.

Our success depends on our ability to drive adoption of our CODEX and Phenoptics platforms.

Our ability to market and sell our CODEX and Phenoptics platforms and increase awareness of spatial biology technology will depend on a number of factors, including:

- our ability to drive adoption of our platforms and complementary products by academic, government, biopharmaceutical, biotechnology and other institutions;
- our ability to increase awareness of the capabilities of our technology and solutions;
- whether our platforms reliably provide advantages over legacy and other alternative technologies and are perceived by customers to be cost effective;
- prices we charge for a direct purchase of, or other access to, our platforms and complementary products;
- the relative reliability and robustness of our platforms and complementary products as a whole and the components of both;
- our ability to develop new workflows, products, services and solutions for customers;
- the impact of our investments in product innovation and commercial growth;
- negative publicity regarding our or our competitors' products resulting from defects or errors; and
- our ability to further validate our technology through research and accompanying publications.

We cannot assure you that we will be successful in addressing each of these criteria or other criteria that might affect the adoption of our solutions. If we are unsuccessful in achieving and maintaining market acceptance of our solutions and spatial biology technology, our business, financial condition, results of operations and prospects could be adversely affected.

Our revenue has been primarily generated from sales of our CODEX and Phenoptics platforms and reagents. If our products do not continue to gain market acceptance, our revenue could be materially and adversely impacted.

We made our first commercial sale of CODEX in the United States in January 2019 and we began selling Phenoptics in October 2018 following our acquisition of this product line from PKI. We currently generate the majority of our revenue from the sale of our CODEX and Phenoptics platforms, reagents and instrument services. Direct sales of CODEX and Phenoptics platforms and consumables together accounted for 76% and 82% of our revenue for the years ended December 31, 2020 and 2019, respectively. We expect that, for at least the foreseeable future, direct sales of our CODEX and Phenoptics platforms and consumables will continue to account for a substantial portion of our revenue while we develop additional products for our spatial biology platforms. As technologies change in the future for research equipment in general and in spatial biology specifically, we will be expected to upgrade or adapt our products in order to keep up with the latest technology and there can be no assurance we will be able to do so. Our sales expectations are based in part on the assumption that our platforms will continue to gain market acceptance as spatial biology becomes more accepted which will in turn will increase the associated purchases of our consumables. If sales of our platforms fail to materialize so will the related consumable sales and associated revenue. If our CODEX and Phenoptics platforms fail to achieve sufficient market acceptance or sales of our consumables decrease, our revenue could be materially and adversely impacted.

If we fail to enter into new customer relationships or maintain and expand existing relationships, our future operating results would be adversely affected as a general matter.

Our customer base includes academic, government, biopharmaceutical, biotechnology and other institutions. Our success will depend upon our ability to increase our market penetration among these customers and to expand our market by developing and marketing new products and new applications for existing products. As we continue to scale our business, we may find that certain of our products, certain customers or certain markets, including the biopharmaceutical market, may require a dedicated sales force or sales personnel with different experience than those we currently employ. Identifying, recruiting and training additional qualified personnel would require significant time, expense and attention.

Our ability to grow our market penetration in existing markets will also depend on our ability to attract new customers by increasing awareness of the capabilities of our spatial biology technology and solutions. Future revenue growth will also depend on our ability to develop and market new workflows, technologies and solutions to meet our existing customers' evolving needs, as well as our ability to identify new applications and customers for our technology in additional markets. If we are unable to drive new customer conversion to our CODEX and Phenoptics platforms, expand adoption of spatial biology technology into new industries and markets, expand the application of workflows across our customers' value chains, increase the usage and value of our workflows to our customers or develop and monetize proprietary biological assets, then our business, financial condition, results of operations and prospects could be adversely affected.

We cannot assure investors that we will be able to further penetrate our existing market or that the market will be able to sustain our current and future product offerings. Any failure to increase penetration in our existing markets would adversely affect our ability to improve our operating results.

Our operating results have fluctuated significantly in the past and may fluctuate significantly in the future, which makes our future operating results difficult to predict and could cause our operating results to fall below expectations.

Our quarterly and annual operating results have fluctuated significantly in the past and may fluctuate significantly in the future, which makes it difficult for us to predict our future operating results. These fluctuations may occur due to a variety of factors, many of which are outside of our control, including, but not limited to:

- the level of demand for our platforms, consumables and technologies, which may vary significantly;
- the length of time of the sales cycle for purchases of our systems, including lead time needed to develop custom workflows or to manufacture component parts;

- the timing and cost of, and level of investment in, research, development, regulatory approval and commercialization activities relating to our products, which may change from time to time;
- the start and completion of projects in which our solutions are utilized;
- the relative reliability and robustness of our platforms, including our technologies;
- the introduction of new products or product enhancements by us or others in our industry;
- expenditures that we may incur to acquire, develop or commercialize additional products and technologies;
- changes in governmental regulations or in the status of our regulatory approvals or applications;
- future accounting pronouncements or changes in our accounting policies; and
- general market conditions and other factors, including factors unrelated to our operating performance or the operating performance of our competitors.

The effect of one of the factors discussed above, or the cumulative effects of a combination of factors discussed above, could result in large fluctuations and unpredictability in our quarterly and annual operating results. As a result, comparing our operating results on a period-to-period basis may not be meaningful. Investors should not rely on our past results as an indication of our future performance.

Our limited operating history makes it difficult to evaluate our future prospects and the risks and challenges we may encounter.

We completed our first commercial Phenoptics sale in October 2018 and CODEX sale in January 2019. Our limited operating history and evolving business make it difficult to evaluate our future prospects and the risks and challenges we may encounter and may increase the risk that we will not grow at or near our expected rates. In addition, we operate in highly competitive markets characterized by rapid technological advances and our business has, and we expect it to continue, to evolve over time to remain competitive.

If we fail to address the risks and difficulties that we face, including those described elsewhere in this “Risk Factors” section, our business, financial condition, results of operations and prospects could be adversely affected. We have encountered in the past, and will encounter in the future, risks and uncertainties frequently experienced by growing companies with limited operating histories in rapidly changing industries. If our assumptions regarding these risks and uncertainties, which we use to plan and operate our business, are incorrect or change, or if we do not address these risks successfully, our results of operations could differ materially from our expectations and our business, financial condition, results of operations and prospects could be adversely affected.

Acquisitions could disrupt our business, cause dilution to our stockholders and otherwise harm our business.

We have and may continue to acquire other businesses or assets to add products or technologies as well as pursue technology licenses or investments in complementary businesses. In 2018, we acquired our Phenoptics platform from PKI. We believe we are successfully integrating the technologies acquired from PKI into our business, but the long-term success of the acquisition is not guaranteed. For example, following the acquisition, PKI served as our sole distributor of our Phenoptics platform for the APAC and EMEA regions in 2019 pursuant to a transition services agreement and accounted for approximately 30% of our revenue for the year ended December 31, 2019. This transaction and any future transactions could be material to our financial condition and operating results and expose us to many risks, including:

- disruption in our relationships with customers, distributors, manufacturers or suppliers as a result of such a transaction;
- unanticipated liabilities related to acquired companies, including liabilities related to acquired intellectual property or litigation relating thereto;
- difficulties integrating acquired personnel, technologies and operations into our existing business;
- diversion of management time and focus from operating our business;

- failure to realize anticipated benefits or synergies from such a transaction;
- increases in our expenses and reductions in our cash available for operations and other uses; and
- possible write-offs or impairment charges relating to acquired businesses.

Even if we identify a strategic transaction that we wish to pursue, we may be prohibited from consummating such transaction due to the terms of our existing or any future indebtedness. If we were to pursue an acquisition that is not permitted by our existing indebtedness, we would be required to seek a waiver from the lender and we cannot assure investors that the lender would grant such a waiver.

Future acquisitions or dispositions could result in potentially dilutive issuances of our equity securities, the incurrence of debt, contingent liabilities, amortization expenses or write-offs of goodwill, any of which could materially impact our financial results or operations.

If our existing and new products fail to achieve and sustain sufficient scientific acceptance, we will not generate expected revenue and our prospects may be harmed.

The life sciences community is comprised of a small number of early adopters and key opinion leaders who significantly influence the rest of the community. The success of life sciences products is due, in large part, to acceptance by the scientific community and their adoption of certain products as best practice in the applicable field of research. The current system of academic and scientific research views publishing in a peer-reviewed journal as a measure of success. In such journal publications, the researchers will describe, not only their discoveries, but also the methods and typically the products used to fuel such discoveries. Mentions in peer-reviewed journal publications is a good barometer for the general acceptance of our products as best practices. Ensuring that early adopters and key opinion leaders publish research involving the use of our products is critical to ensuring our products gain widespread acceptance and market growth. Continuing to maintain good relationships with such key opinion leaders is vital to growing our market. The number of times our products were mentioned in peer-reviewed publications has increased significantly in the last two years. During this time our revenue has also increased significantly. We cannot assure investors that our products will continue to be mentioned in peer-reviewed articles with any frequency or that any new products that we introduce in the future will be mentioned in peer-reviewed articles. If too few researchers describe the use of our products, too many researchers shift to a competing product and publish research outlining their use of that product or too many researchers negatively describe the use of our products in publications, it may drive existing and potential customers away from our products, which could harm our operating results.

We generally recognize revenue from first-year warranty, extended warranty and service contracts over the contract term, and changes in sales of such contracts may not be immediately reflected in our operating results.

Our instruments are sold with a twelve month warranty. We offer our customers the option to purchase extended warranty and service programs for regular system maintenance and system optimization on a fixed fee basis. We generally recognize revenue from our first-year warranty, extended warranty and service contracts ratably over the contract term, which is typically twelve months, which could in some cases be subject to an early termination right. Revenue from our first-year warranty, extended warranty and service contracts accounted for 13% and 10% of our revenue for the years ended December 31, 2020 and 2019, respectively. A portion of the revenue we report in each quarter is derived from the recognition of deferred revenue relating to extended warranty and service contracts entered into during previous quarters. Consequently, a decline in new or renewed extended warranty and service contracts by our customers in any one quarter may not be immediately reflected in our revenue for that quarter. Such a decline, however, will negatively affect our revenue in future quarters. Accordingly, the effect of significant downturns in sales and market acceptance of our services and potential changes in our rate of renewals may not be fully reflected in our operating results until future periods.

If we were to be sued for product liability, we could face substantial liabilities that exceed our resources.

The marketing, sale and use of our products could lead to the filing of product liability claims were someone to allege that our products identified inaccurate or incomplete information regarding the tissues

analyzed or otherwise failed to perform as designed. We may also be subject to liability for errors in a misunderstanding of or inappropriate reliance upon the information we provide in the ordinary course of our business activities. A product liability claim could result in substantial damages and be costly and time-consuming for us to defend.

We maintain product liability insurance, but this insurance may not fully protect us from the financial impact of defending against product liability claims. Any product liability claim brought against us, with or without merit, could increase our insurance rates or prevent us from securing insurance coverage in the future. Additionally, any product liability lawsuit could damage our reputation, or cause current customers to terminate existing agreements and potential clinical partners to seek other partners, any of which could impact our business, financial condition, results of operations and prospects.

Our business, financial condition, results of operations and prospects may be harmed if our customers discontinue or spend less on research, development and production and other scientific endeavors.

Our customers include biopharmaceutical companies and academic and clinical institutions. Many factors, including public policy spending priorities, available resources and internal budgets and product and economic cycles, have a significant effect on the capital spending policies of these entities. Fluctuations in the research and development budgets of our customers could have a significant effect on the demand for our products. Our customers determine their research and development budgets based on several factors, including the need to develop new products, continued availability of governmental and other funding, competition and the general availability of resources. If their research and development budgets are reduced, the impact could adversely affect our business, financial condition, results of operations and prospects.

If we are unable to support demand for the CODEX and Phenoptics platforms and consumables, and for our future product offerings, including ensuring that we have adequate capacity to meet increased demand, or if we are unable to successfully manage our anticipated growth, our business could suffer.

As the number of customers using our CODEX and Phenoptics platforms and consumables grows and our volume of installed instruments increases, we will need to continue to increase our capacity for customer service and support and for billing and general process improvements and to expand our internal quality assurance programs. We will also need to purchase additional equipment, some of which can take several months or more to procure, setup and validate, and increase our personnel levels to meet increased demand. There is no assurance that any of these increases in scale, expansion of personnel, equipment, software and computing capacities or process enhancements will be successfully implemented, or that we will have adequate space, including in our laboratory facility, to accommodate such required expansion.

As we commercialize additional products, we will need to incorporate new equipment, implement new technology systems and laboratory processes, and hire new personnel, possibly with supplemental or different qualifications as compared to our current personnel. Failure to manage this growth or transition could result in turnaround time delays, higher product costs, declining product quality, deteriorating customer service and slower responses to competitive challenges. A failure in any one of these areas could make it difficult for us to meet market expectations for our products and could damage our reputation and the prospects for our business.

The sizes of the markets for our solutions may be smaller than estimated and new market opportunities may not develop as quickly as we expect, or at all, limiting our ability to successfully sell our solutions.

The market for spatial biology products is new and evolving, making it difficult to predict with any accuracy the sizes of the markets for our current and future solutions. Our estimates of the annual TAM for our current and future solutions are based on a number of internal and third-party estimates and assumptions. In particular, our estimates are based on our expectations that: (a) researchers in the market for certain life sciences research tools and technologies will view our solutions as competitive alternatives to, or better options than, such existing tools and technologies; and (b) researchers who already own such existing tools and technologies will recognize the ability of our solutions to complement, enhance and enable new applications of their current tools and technologies and find the value proposition offered by our solutions convincing enough to purchase our solutions in addition to the tools and technologies they already own. Underlying each of these expectations are a number of estimates and assumptions, including the

assumption that government or other sources of funding will continue to be available to life sciences researchers at times and in amounts necessary to allow them to purchaser our solutions.

In addition, our growth strategy involves launching new products and expanding sales of existing products into new markets in which we have limited or no experience. Sales of new or existing products into new market opportunities may take several years to develop and mature and we cannot be certain that these market opportunities will develop as we expect. For example, new life sciences technology is often not adopted by the relevant market until a sufficient amount of research conducted using such technology has been published in peer-reviewed publications. Because there can be a considerable delay between the launch of a new life sciences product and publication of research using such product, new life sciences products do not generally contribute a meaningful amount of revenue in the year they are introduced. In certain markets, such as the biopharmaceutical market, new life sciences technology, even if sufficiently covered in peer-reviewed publications, may not be adopted until the consistency and accuracy of such technology, method or device has been proven. As a result, the sizes of the annual TAM for new markets and new products are even more difficult to predict.

While we believe our assumptions and the data underlying our estimates of the total annual addressable market for our solutions are reasonable, these assumptions and estimates may not be correct and the conditions supporting our assumptions or estimates, or those underlying the third-party data we have used, may change at any time, thereby reducing the accuracy of our estimates. As a result, our estimates of the annual TAM for our solutions may be incorrect.

The future growth of the market for our current and future products depends on many factors beyond our control, including recognition and acceptance of our instruments and products by the scientific community as best practice and the growth, prevalence and costs of competing products and solutions. Such recognition and acceptance may not occur in the near term, or at all. If the markets for our current and future solutions are smaller than estimated or do not develop as we expect, our growth may be limited and our business, financial condition and operational results may be adversely affected.

If we fail to offer high quality customer service, our business and reputation could suffer.

We differentiate ourselves from our competition through our commitment to an exceptional customer experience. Accordingly, high quality customer service is important for the growth of our business and any failure to maintain such standards of customer service, or a related market perception, could affect our ability to sell products to existing and prospective customers. Additionally, we believe our customer service team has a positive influence on recurring consumables revenue. Providing an exceptional customer experience requires significant time and resources from our customer service team. Therefore, failure to scale our customer service organization adequately may adversely impact our business results and financial condition.

The number of our customers has grown significantly and such growth, as well as any future growth, will put additional pressure on our customer service organization. We may be unable to hire qualified staff quickly enough or to the extent necessary to accommodate increases in demand.

In addition, as we continue to grow our operations and reach a global customer base, we need to be able to provide efficient customer service that meets our customers' needs globally at scale. In geographies where we sell through distributors, we rely on those distributors to provide customer service. If these third-party distributors do not provide a high-quality customer experience, our business operations and reputation may suffer.

Our management uses certain key business metrics to evaluate our business, measure our performance, identify trends affecting our business, formulate financial projections and make strategic decisions and such metrics may not accurately reflect all of the aspects of our business needed to make such evaluations and decisions, in particular as our business continues to grow.

In addition to our consolidated financial results, our management regularly reviews a number of operating and financial metrics, including various revenue metrics and cash flows to evaluate our business, measure our performance, identify trends affecting our business, formulate financial projections and make strategic decisions. We believe that these metrics are representative of our current business; however, these

metrics may not accurately reflect all aspects of our business and we anticipate that these metrics may change or may be substituted for additional or different metrics as our business grows and as we introduce new products. For example, we expect that our expansion into new markets and adoption by new customers who may not have the same financial resources to devote to consumable purchases as our existing customer base could adversely impact our revenue metrics. If our management fails to review other relevant information or change or substitute the key business metrics they review as our business grows and we introduce new products, their ability to accurately formulate financial projections and make strategic decisions may be compromised and our business, financial results and future growth prospects may be adversely impacted.

We will need to raise additional capital to fund our existing operations, improve our platform or develop and commercialize new products and technologies, or expand our operations.

Based on our current business plan, we believe the net proceeds from this offering, together with our current cash and cash equivalents and the remaining $5.0 million available to be drawn under our credit facility, will be sufficient to meet our anticipated cash requirements for at least the next 12 months from the date of this prospectus. If our available cash resources, net proceeds from this offering and anticipated cash flow from operations are insufficient to satisfy our liquidity requirements including because of lower demand for our products or the realization of other risks described in this prospectus, we may be required to raise additional capital prior to such time through issuances of equity or convertible debt securities, entrance into a credit facility or another form of third party funding or seek other debt financing.

In any event, we may 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 CODEX and Phenoptics platforms and consumables and address competitive developments;
- fund development and marketing efforts of products from our programs or any other future products;
- expand our technologies into additional markets;
- acquire, license or invest in additional intellectual property and 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 launching and commercializing new products, and the cost of the sales and marketing activities associated with, establishing adoption of our CODEX and Phenoptics platforms and consumables;
- our rate of progress in, and cost of research and development activities associated with, products in research and development;
- the effect of competing technological and market developments;
- costs related to domestic and international expansion; and
- the potential cost of and delays in product development as a result of any regulatory oversight applicable to our products.

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 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 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

or licensing arrangements, we might be required to relinquish significant rights to our platform technologies or products or grant licenses on terms that are not favorable to us.

If we are unable to obtain adequate financing or financing on terms satisfactory to us, if we require it, our ability to continue to pursue our business objectives and to respond to business opportunities, challenges, or unforeseen circumstances could be significantly limited, and could have a material adverse effect on our business, financial condition, results of operations and prospects.

Our Term Loan contains covenants, which restrict our operating activities, and we may be required to repay the outstanding indebtedness in an event of default, which could have a material adverse effect on our business, financial condition, results of operations and prospects.

In October 2020, we entered into a credit and security agreement, or Term Loan, with Midcap Financial Trust, or the Lender, pursuant to which the Lender agreed to provide us a $37.5 million credit facility. The Company has drawn has drawn $32.5 million as of December 31, 2020 and the remaining $5.0 million not yet drawn on the term loan is available to be drawn from March 31, 2021, through June 30, 2021, subject to our compliance with the covenants contained in our Term Loan. The loan matures in October 2025. Until we have repaid such indebtedness, the Term Loan subjects us to various customary covenants, including requirements as to financial reporting, liquidity ratios and insurance and restrictions on our ability to dispose of our business or property, to change our line of business, to liquidate or dissolve, to enter into any change in control transaction, to merge or consolidate with any other entity or to acquire all or substantially all the capital stock or property of another entity, to incur additional indebtedness, to incur liens on our property, to pay any dividends or make other distributions on capital stock other than dividends payable solely in capital stock, to redeem capital stock, to enter into certain in-bound licensing agreements, to engage in transactions with affiliates, and to encumber our intellectual property. In particular, we are subject to a minimum revenue financial covenant measuring our last twelve months trailing revenue, tested on a monthly basis. Our business may be adversely affected by these restrictions on our ability to operate our business.

We are permitted to make interest only payments on the loan facility through October 2023, at which time principal payments begin. However, we may be required to repay the outstanding indebtedness under the loan facility if an event of default occurs under the Term Loan. An event of default will occur if, among other things, we fail to make required payments under the Term Loan; we breach any of our covenants under the loan and security agreement, subject to specified cure periods with respect to certain breaches; the Lender determines that a material adverse change (as defined in the loan and security agreement) has occurred; we or our assets become subject to certain legal proceedings, such as bankruptcy proceedings; we are unable to pay our debts as they become due; or we default on contracts with third parties which would permit the third party to accelerate the maturity of such indebtedness or that could have a material adverse change on us. We may not have enough available cash or be able to raise additional funds through equity or debt financings to repay such indebtedness at the time any such event of default occurs. In such a case, we may be required to delay, limit, reduce or terminate our product development or operations or grant to others rights to develop and market products that we would otherwise prefer to develop and market ourselves. The Lender could also exercise its rights as secured lender to take possession of and to dispose of the collateral securing the term loan, which collateral includes substantially all of our property. Our business, financial condition, results of operations and prospects could be materially adversely affected as a result of any of these events.

Our actual operating results may differ significantly from any operating guidance we may provide.

From time to time, we may release guidance in our quarterly or annual earnings conference calls, quarterly or annual earnings releases, or otherwise, regarding our future performance that represents our management's estimates as of the date of release. This guidance, which will include forward-looking statements, will be based on projections prepared by our management. These projections may not be prepared with a view toward compliance with published guidelines of the American Institute of Certified Public Accountants, or AICPA, and Public Company Accounting Oversight Board, or PCAOB, and neither our registered public accountants nor any other independent expert or outside party compiles or examines the projections. Accordingly, no such person will express any opinion or any other form of assurance with respect to the projections.

Projections are based upon a number of assumptions and estimates that, while presented with numerical specificity, are inherently subject to significant business, economic and competitive uncertainties and contingencies, many of which are beyond our control and are based upon specific assumptions with respect to future business decisions, some of which will change. The principal reason that we may release guidance is to provide a basis for our management to discuss our business outlook with analysts and investors. We do not accept any responsibility for any projections or reports published by any such third parties.

Guidance is necessarily speculative in nature, and it can be expected that some or all of the assumptions underlying the guidance furnished by us will not materialize or will vary significantly from actual results.

Accordingly, our guidance is only an estimate of what management believes is realizable as of the date of release. Actual results may vary from our guidance and the variations may be material.

Any failure to successfully implement our operating strategy or the occurrence of any of the events or circumstances set forth in this "Risk Factors" section in this prospectus could result in actual operating results being different from our guidance, and the differences may be adverse and material.

We received economic stimulus funding under the CARES Act. If such funding is not forgiven and is required to be repaid pursuant to the terms of the CARES Act or related guidance, our business, results of operations, and financial condition may be materially and adversely affected.

Section 1102 of the CARES Act established the Paycheck Protection Program, or PPP, which provided additional funding for small businesses, as defined by the Small Business Administration, or SBA, to keep workers employed during the COVID-19 pandemic. In April 2020, we applied for and received PPP funding from Park State Bank in the aggregate amount of $2.48 million. Proceeds can only be used for specified covered purposes including payroll, mortgage interest, rent and utilities in accordance with the CARES Act. The PPP loan has a two-year term and bears interest at a rate of 1.0% per annum. To the extent proceeds are used for these covered purposes, some or all of the related principal balances may be forgiven. We spent the proceeds on covered purposes. We have completed our forgiveness application reflecting our use of all of our PPP loan proceeds and submitted this application, together with any supporting documentation, to Park State Bank.

We cannot provide assurance that the original principal and interest amounts under the PPP loan will be forgiven. If it is determined that our PPP loans did not comply with requirements after receiving our PPP loan, we may be required to repay the PPP loan in its entirety and/or be subject to additional penalties (potentially including civil and criminal fines and penalties) and adverse publicity, which could have a material adverse effect on our business, results of operations, and financial condition. Additionally, the SBA may audit our PPP loan. Should we be audited or reviewed by federal or state regulatory authorities, such audit or review could result in the diversion of management's time and attention, generation of negative publicity, the incurrence of additional legal and reputational costs, and potential exposure to civil and criminal liability. Any of these events could have a material adverse effect on our business, results of operations, and financial condition.

Our market is highly competitive, and if we cannot compete successfully with our competitors, we may be unable to increase or sustain our revenue, or achieve and sustain profitability.

We face significant competition in our market. We currently compete with both established and early stage life sciences technology companies that design, manufacture and market products and software for, among other applications, genomics, tissue analysis, spatial analysis and immunology, and/or provide services related to the same. Growing understanding of the importance of spatial biology information is leading to more companies offering services related to collecting such information. Potential competitors within our space include 10x Genomics, Nanostring Technologies and Fluidigm, among others. In addition, our customers may also elect to develop their workflows on legacy systems rather than our platforms and may decide to stop using our platforms.

Our competitors and potential competitors may enjoy a number of competitive advantages over us, including:

- longer operating histories;

- larger customer bases;
- greater brand recognition and market penetration;
- greater financial resources;
- greater technological and research and development resources;
- more expansive intellectual property and proprietary rights; and
- larger commercial organizations and manufacturing organizations.

As a result, our competitors and potential competitors may be able to respond more quickly to changes in customer requirements, devote greater resources to the development, promotion and sale of their products than we can or sell their products, or offer services competitive with our platforms, consumables and services at prices designed to win significant levels of market share. We may not be able to compete effectively against these organizations.

In addition, competitors may be acquired by, receive investments from or enter into other commercial relationships with larger, well-established and well-financed companies. Certain of our competitors may be able to secure key inputs from vendors on more favorable terms, devote greater resources to marketing and promotional campaigns, adopt more aggressive pricing policies and devote substantially more resources to product development than we can. If we are unable to compete successfully against current and future competitors, we may be unable to increase market adoption and sales of our platform, which could prevent us from increasing our revenue or achieving profitability.

We must develop new products, adapt to rapid and significant technological change and respond to introductions of new products by competitors to remain competitive.

We sell our products in industries that are characterized by significant enhancements and evolving industry standards. As a result, our customers' needs are rapidly evolving. If we do not appropriately innovate and invest in new products and technologies, our offerings may become less desirable in the markets we serve, and our customers could move to new technologies offered by our competitors or make products themselves. Though we believe customers in our markets display a significant amount of loyalty to their supplier of a particular product, we also believe that because of the initial time investment required by many of our customers to reach a purchasing decision for a new product, it may be difficult to regain that customer once the customer purchases a product from a competitor. Without the timely introduction of new products, services and enhancements, our offerings will likely become less competitive over time, in which case our competitive position and operating results could suffer. Accordingly, we focus significant efforts and resources on the development and identification of new technologies, products and markets to further broaden our offerings. To the extent we fail to timely introduce new and innovative products or services, adequately predict our customers' needs or fail to obtain desired levels of market acceptance, our business may suffer and our operating results could be adversely affected.

We may be unable to manage our future growth effectively, which could make it difficult to execute our business strategy.

Since our inception in 2015, we have experienced rapid growth and anticipate further growth in our business operations. Our growth between 2015 and 2020 has required significant time and attention from our management, and placed strains on our operational and manufacturing systems and processes, financial systems and internal controls and other aspects of our business. We expect to continue to increase headcount and to hire more specialized personnel in the future as we grow our business. We will need to continue to hire, train and manage additional qualified scientists, engineers, laboratory personnel, client and account services personnel and sales and marketing staff and improve and maintain our technology to properly manage our growth. We may also need to hire, train and manage individuals with expertise that is separate, supplemental or different from expertise that we currently have, and accordingly we may not be successful in hiring, training and managing such individuals. If our new hires perform poorly, if we are unsuccessful in hiring, training, managing and integrating these new employees, or if we are not successful in retaining our existing employees, our business may be harmed.

Developing and launching new products and innovating and improving our existing products have required us to hire and retain additional scientific, engineering, sales and marketing, software, manufacturing, distribution and quality assurance personnel. As a result, we have experienced rapid headcount growth since our inception in 2015 with 169 employees as of December 31, 2020. As we have grown, our employees have become more geographically dispersed. We currently serve customers located in more than 35 countries and plan to continue to expand to new international jurisdictions as part of our growth strategy, which will lead to increased dispersion of our employees, including sales employees and employees who are in our service and support groups. Moreover, we expect that we will need to hire additional accounting, finance and other personnel in connection with our becoming, and our efforts to comply with the requirements of being, a public company. Once public, our management and other personnel will need to devote a substantial amount of time towards maintaining compliance with these requirements. We may face challenges integrating, developing and motivating our rapidly growing and increasingly dispersed employee base.

We may not be able to maintain the quality, reliability or robustness of our platform, or the expected turnaround times of our services and support, or to satisfy customer demand as it grows. Our ability to manage our growth properly will require us to continue to improve our operational, financial and management controls, as well as our reporting systems and procedures. To effectively manage our growth, we must continue to improve our operational and manufacturing systems and processes, our financial systems and internal controls and other aspects of our business and continue to effectively expand, train and manage our personnel. The time and resources required to improve our existing systems and procedures, implement new systems and procedures and to adequately staff such existing and new systems and procedures is uncertain, and failure to complete this in a timely and efficient manner could adversely affect our operations and negatively impact our business and financial results.

We have limited experience in marketing and sales, and if we are unable to expand our marketing and sales organization to adequately address our customers' needs, our business may be adversely affected.

We have limited experience in marketing and selling our products. We may not be able to market, sell or distribute our current products, or future products that we may develop, effectively enough to support our planned growth.

Competition for employees capable of selling expensive instruments within the pharmaceutical and biotechnology industries is intense. We may not be able to attract and retain personnel or be able to build an efficient and effective sales organization, which could negatively impact sales and market acceptance of our products and limit our revenue growth and potential profitability. In addition, the time and cost of establishing a specialized sales, marketing and service force for a particular product or service may be difficult to justify in light of the revenue generated or projected.

Our expected future growth will impose significant added responsibilities on members of management, including the need to identify, recruit, maintain and integrate additional employees. Our future financial performance and our ability to commercialize our products and to compete effectively will depend, in part, on our ability to manage this potential future growth effectively, without compromising quality.

We rely on distributors for the sale of our products in certain countries outside of the United States, in some cases, in addition to direct sales in such countries. We exert limited control over these distributors under our agreements with them, and if their sales and marketing efforts for our products in the region are not successful, our business would be materially and adversely affected. Locating, qualifying and engaging distribution partners with local industry experience and knowledge will be necessary in at least the short to mid-term to effectively market and sell our platform in certain countries outside the United States. We may not be successful in finding, attracting and retaining distribution partners, or we may not be able to enter into such arrangements on favorable terms. Even if we are successful in identifying distributors, such distributors may engage in sales practices that violate local laws or our internal policies. Furthermore, sales practices utilized by any such distribution parties that are locally acceptable may not comply with sales practices standards required under U.S. laws that apply to us, which could create additional compliance risk. If our sales and marketing efforts by us or our distributors are not successful outside the United States, we may not achieve significant market acceptance for our products outside the United States, which would materially and adversely impact our business, financial condition, results of operations and prospects.

The loss of any member of our senior management team or our inability to attract and retain highly skilled scientists, engineers and salespeople could adversely affect our business.

Our success depends on the skills, experience and performance of key members of our senior management team, including Brian McKelligon, our Chief Executive Officer. The individual and collective efforts of these employees will be important as we continue to develop our platforms and additional products, and as we expand our commercial activities. The loss or incapacity of existing members of our executive management team could adversely affect our operations if we experience difficulties in hiring qualified successors. Our executive officers are at-will employees, and we cannot guarantee their retention for any period of time. We do not maintain "key person" insurance on any of our employees.

Our research and development programs and laboratory operations depend on our ability to attract and retain highly skilled scientists and engineers. We may not be able to attract or retain qualified scientists and engineers in the future due to the competition for qualified personnel among life sciences businesses. We also face competition from universities and public and private research institutions in recruiting and retaining highly qualified scientific and engineering personnel. We may have difficulties locating, recruiting or retaining qualified sales people. Recruiting and retention difficulties can limit our ability to support our research and development and sales programs. All of our employees are at-will, which means that either we or the employee may terminate their employment at any time.

Due to the significant resources required to enable access in new markets, we must make strategic and operational decisions to prioritize certain markets, technology offerings or partnerships. We may expend our resources to access markets, develop technologies or form certain partnerships that do not yield meaningful revenue or we may fail to capitalize on markets, technologies or partnerships that may be more profitable or with a greater potential for success.

We believe our platforms have potential applications across a wide range of markets and we have targeted certain markets in which we believe our technology has significant advantages, or for which we believe we have a higher probability of success or revenue opportunity or for which the path to commercialize products and realizing or achieving revenue is shorter. We seek to maintain a process of prioritization and resource allocation among our programs to maintain a balance between advancing near-term opportunities and exploring additional markets for our technology. However, due to the significant resources required for the development of workflows for new markets, we must make decisions on which markets to pursue and the amount of resources to allocate to each. Our decisions concerning the allocation of research, development, collaboration, management and financial resources toward particular markets or workflows may not lead to the development of any viable product and may divert resources away from better opportunities. Similarly, our potential decisions to delay, terminate or collaborate with third parties in respect of certain markets may subsequently also prove to be suboptimal and could cause us to miss valuable opportunities. In particular, if we are unable to develop additional relevant workflows for markets such as antibody therapeutics, cell therapy or the synthetic biology market it could slow or stop our business growth and negatively impact our business, financial condition, results of operations and prospects.

If our operating facilities, including those of our third party manufacturers, become damaged or inoperable, our ability to conduct and pursue our research and development efforts and manufacture our products may be jeopardized.

We currently derive the majority of our revenue based upon scientific and engineering research and development conducted at two facilities located in California and Massachusetts and from products manufactured by our third party manufacturers. Our facilities and equipment, and that of our third party manufacturers, could be harmed or rendered inoperable or inaccessible by natural or man-made disasters or other circumstances beyond our control, including fire, earthquake, power loss, communications failure, war or terrorism, or another catastrophic event, such as a pandemic or similar outbreak or public health crisis, which may render it difficult or impossible for us to support our customers and develop updates, upgrades and other improvements to our CODEX and Phenoptics platforms, and workflow software for some period of time. The inability to address system issues or manufacture our products could develop if our facilities, or those of our third party manufacturers, are inoperable or suffer a loss of utilization for even a short period of time, may result in the loss of customers or harm to our reputation, and we may be unable to regain

those customers or repair our reputation in the future. Furthermore, our facilities and the equipment we use to perform our research and development work could be unavailable or costly and time-consuming to repair or replace. It would be difficult, time-consuming and expensive to rebuild either of our facilities, to locate and qualify a new facility or license or transfer our proprietary technology to a third party. Even in the event we are able to find a third party to assist in research and development efforts, we may be unable to negotiate commercially reasonable terms to engage with the third party.

We carry insurance for damage to our property and the disruption of our business, but this insurance may not cover all of the risks associated with damage or disruption to our business, may not provide coverage in amounts sufficient to cover our potential losses and may not continue to be available to us on acceptable terms, if at all.

Our insurance policies are expensive and protect us only from some business risks, which leaves us exposed to significant uninsured liabilities.

We do not carry insurance for all categories of risk that our business may encounter and our policies have limits and significant deductibles.

Some of the policies we currently maintain include general liability, property, umbrella and directors' and officers' insurance.

Any additional product liability insurance coverage we acquire in the future, may not be sufficient to reimburse us for any expenses or losses we may suffer. Moreover, insurance coverage is becoming increasingly expensive and in the future we may not be able to maintain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses. A successful product liability claim or series of claims in which judgments exceed our insurance coverage could adversely affect our business, financial condition, results of operations and prospects, including preventing or limiting the commercialization of any products we develop.

We also expect that operating as a public company will make it more difficult and more expensive for us to obtain director and officer liability insurance, and we may be required to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. As a result, it may be more difficult for us to attract and retain qualified people to serve on our board of directors, our board committees or as executive officers. We do not know, however, if we will be able to maintain existing insurance with adequate levels of coverage. Any significant uninsured liability may require us to pay substantial amounts, which would adversely affect our business, financial condition, results of operations and prospects.

Public health crises such as COVID-19 and similar pandemics or outbreaks have caused and could cause disruptions of the development of our platform technologies and products, and adversely impact our business, financial condition and results of operations.

In March 2020, the World Health Organization declared the novel coronavirus disease, or COVID-19, a global pandemic. The COVID-19 pandemic continues to evolve, and to date has led to the implementation of various responses, including government imposed shelter-in-place orders, quarantines, travel restrictions and other public health safety measures, as well as reported adverse impacts on healthcare resources, facilities and providers across the United States and in other countries, all of which may become additionally heightened concerns upon a subsequent waves of infection. In response to the spread of COVID-19, and in accordance with direction from state and local government authorities, we have restricted access to our facilities mostly to personnel and third parties who must perform critical activities that must be completed on-site, limited the number of such personnel that can be present at our facilities at any one time, and requested that most of our personnel work remotely. In the event that government authorities were to further modify current restrictions, our employees conducting research and development or manufacturing activities may not be able to access our laboratory or manufacturing space, and our core activities may be significantly limited or curtailed, possibly for an extended period of time.

The COVID-19 pandemic has also created many negative headwinds that present risks to our business and results of operations. For example, it has generally disrupted the operations of our customers and prospective customers, and may continue to disrupt their operations, including as a result of laboratory closures, travel restrictions and/or business shutdowns, uncertainty in the financial markets or other harm to

their business and financial results. These disruptions have caused reduced capital spend by our existing customers and potential new customers, which has have negatively impacted our instrument and consumables sales. These disruptions could result in further reductions to capital expenditure budgets, delayed purchasing decisions, longer sales cycles, extended payment terms or missed payments, and postponed or canceled projects, any of which would negatively impact our business and operating results, including sales and cash flows. We do not yet know the net impact that the COVID-19 pandemic may have on our business and cannot guarantee that it will not be materially negative. Although we continue to monitor the situation and may adjust our current policies as more information and public health guidance become available, the ongoing effects of the COVID-19 pandemic and/or the precautionary measures that we have adopted may create operational and other challenges, any of which could harm our business and results of operations. The uncertain development of the COVID-19 pandemic may also exacerbate the severity of the other risks disclosed herein.

Security incidents, loss of data or modification of information, and other disruptions could compromise information related to our business or prevent us from accessing critical information, result in a significant disruption of our activities and expose us to liability, which could adversely affect our business and our reputation.

In the ordinary course of our business, we collect and store information, including personal information, intellectual property and proprietary business information that we own or control or have an obligation to protect. For example, we collect and store research and development information, employee data, commercial information, customer information, business and financial information, and payment card data. We and our service providers, including security and infrastructure vendors, manage and maintain our applications and data using a combination of on-site systems and cloud-based data centers. We face a number of risks related to protecting critical information and our applications, including inappropriate use or disclosure, unauthorized access or acquisition, or inappropriate modification of, critical information. We also face the risk of being unable to access our critical information, applications, or systems due to actual or threats of ransomware, unauthorized encryption, or other malicious activity. We face the risk of our being unable to adequately monitor and audit and modify our controls over our critical information and applications. These risks extend to third-party service providers and subcontractors we use to assist us in managing our information or otherwise process it on our behalf. The secure processing, storage, maintenance and transmission of our critical information are vital to our operations and business strategy, and we devote significant resources to protecting such information.

Although we take reasonable measures to protect critical information and other data from unauthorized access, acquisition, use or disclosure, our information technology and infrastructure and that of our service providers handling and storing information on our behalf may be vulnerable to a variety of disruptions, including data breaches, attacks by hackers and other malicious third parties (including the deployment of computer viruses, malware, ransomware, denial-of-service attacks, social engineering, and other events that affect service reliability and threaten the confidentiality, integrity, and availability of information), unauthorized access, natural disasters, fires, terrorism, war, telecommunications or electrical interruptions or failures, employee error or malfeasance or other malicious or inadvertent disruptions. In particular, the risk of a security breach or disruption, particularly through cyber-attacks or cyber intrusion, has generally increased as the number, intensity, and sophistication of attempted attacks and intrusions from around the world have increased. We may not be able to anticipate all types of security threats, and we may not be able to implement preventive measures effective against all such security threats. Because the techniques used by cyber criminals change frequently, may not be recognized until launched, and can originate from a wide variety of sources, including outside groups such as external service providers, organized crime affiliates or terrorist organizations, we and our services providers and other partners may be unable to anticipate these techniques or implement adequate preventative measures. Further, we do not have any control over the operations of the facilities or technology of third parties that collect, process and store sensitive information on our behalf. Any unauthorized access or acquisition, breach, or other loss, of information could result in legal claims or proceedings, and liability under U.S. federal or state, or non-U.S., laws regarding the privacy and protection of information, including personal information, and could disrupt our operations and harm our reputation. In addition, notice of breaches may be required to affected individuals, regulators, credit reporting agencies or the media. Any such publication or notice could harm our reputation and our ability to compete. The financial exposure from the events referenced above could either not be insured against or not be fully covered through any insurance that we may maintain, and there can be no assurance that

the limitations of liability in any of our contracts would be enforceable or adequate or would otherwise protect us from liabilities or damages as a result of the events referenced above.

In December 2019, we experienced a ransomware incident, which resulted in the encryption of certain Company files. We did not experience a loss of information, and determined that we were not required to notify any person of such incident. The breach was caused by a consultant's support access application becoming compromised which allowed for the installation of malware that encrypted large datasets within our internal network. Upon discovery of the malware, we immediately terminated the consultant's access, files were restored to their original state prior to the encryption, the access application and malware were removed and all users were required to update their passwords. After investigation, we determined that no personal information was accessed or lost. In order to protect against similar occurrences, we took a series of remedial measures, including limiting remote access to our network by third parties, implementing a robust intrusion detection system to protect the network, installing multiple scanning applications on all systems, and implementing a required cybersecurity awareness training program to ensure end users can identify potentially harmful emails and files. However, despite these remedial measures, there can be no assurance that we will be able to protect against similar incidents in the future. Though we determined the ransomware incident had no material impact on our business, including no access to or loss of personal information, this event or similar events in the future may subject us to unfavorable publicity, claims by one or more state attorneys general, or other regulators, any of which could expose us to a disruption or challenges relating to our daily operations, as well as to litigation, disputes, regulatory investigations, orders, damages, fines, indemnity obligations, damages for contract breach, penalties for violation of applicable laws and regulations, and significant increases in compliance costs, and could inhibit sales. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

Seasonality may cause fluctuations in our revenue and results of operations.

We operate on a December 31st year end and believe that there are seasonal factors which may cause sales of our products to vary on a quarterly or yearly basis and increase the magnitude of quarterly or annual fluctuations in our operating results. We believe that this seasonality results from a number of factors, including the procurement and budgeting cycles of many of our customers, especially government- or grant-funded customers, whose cycles often coincide with government fiscal year ends. For example, the United States government's fiscal year end occurs in our third quarter and may result in increased sales of our products during this quarter if government-funded customers have unused funds that may be forfeited, or future budgets that may be reduced, if such funds remain unspent at such fiscal year end. Furthermore, the academic budgetary cycle similarly requires grantees to 'use or lose' their grant funding, which seems to be tied disproportionately to the end of the calendar year, driving sales higher during the fourth quarter. Similarly, our biopharmaceutical customers typically have calendar year fiscal years which also result in a disproportionate amount of their purchasing activity occurring during our fourth quarter. These factors have contributed, and may contribute in the future, to fluctuations in our quarterly operating results. Because of these fluctuations, it is possible that in some quarters our operating results will fall below the expectations of securities analysts or investors. If that happens, the market price of our common stock would likely decrease. These fluctuations, among other factors, also mean that our operating results in any particular period may not be relied upon as an indication of future performance. Seasonal or cyclical variations in our sales have in the past, and may in the future, become more or less pronounced over time, and have in the past materially affected, and may in the future materially affect, our business, financial condition, results of operations and prospects.

Risks Related to Manufacturing and Supply

We outsource the manufacturing of our instruments and reagents to third party manufacturers. The failure of these manufacturers to manufacture finished goods on a timely basis could adversely affect our business.

We have engaged with three different third parties to manufacture our instruments and reagents. One such third party manufacturer manufactures Codex instruments, a second manufactures Phenoptics instruments, and the other third party manufactures our reagent kits. In addition, the third parties we rely on source certain key parts of our instruments from other various parties. We do not have any control over the process or timing of the acquisition or manufacture of materials by our third party manufacturers, and

cannot ensure that they will deliver to us the finished goods we order on time, or at all. If the operations of our third party manufacturers are interrupted, cease, or if they are unable to meet our delivery requirements due to capacity limitations or other constraints, we may be limited in our ability to fulfill new customer orders or to service or repair instruments at current customer sites. Any change to another contract manufacturer, even if ultimately consummated, would likely entail significant delay, require us to devote substantial time and resources, result in additional costs, and could involve a period in which our systems could not be produced in a timely or consistently high-quality manner, any of which could harm our reputation and business, and frustrate our customers and cause them to turn to our competitors. Additionally, we may be unable to enter into agreements with another contract manufacturer on commercially reasonable terms or at all, which could have a material adverse impact on our business.

Our third party manufacturers are dependent upon third party suppliers, including single source suppliers, making us vulnerable to supply shortages and price fluctuations, which could harm our business.

Our instruments and reagents contain components that are currently manufactured by a single supplier or a limited number of suppliers. In many of these cases, we and our third party manufacturers have not yet engaged alternate suppliers and rely upon purchase orders, rather than long-term supply agreements. A supply interruption or an increase in demand beyond our current suppliers' capabilities could harm our ability to manufacture our systems unless and until new sources of supply are identified and qualified. Our reliance on these suppliers subjects us to a number of risks that could harm our business, including:

- interruption of supply resulting from modifications to or discontinuation of a supplier's operations;
- delays in product shipments resulting from uncorrected defects, reliability issues, or a supplier's variation in a component;
- a lack of long-term supply arrangements for key components with our suppliers;
- inability to obtain adequate supply in a timely manner, or to obtain adequate supply on commercially reasonable terms;
- difficulty and cost associated with locating and qualifying alternative suppliers for our components in a timely manner;
- a modification or change in a manufacturing process or part that unknowingly or unintentionally negatively impacts the operation of our systems;
- production delays related to the evaluation and testing of products from alternative suppliers, and corresponding regulatory qualifications;
- delay in delivery due to our suppliers prioritizing other customer orders over ours;
- damage to our brand reputation caused by defective components produced by our suppliers;
- increased cost of our warranty program due to product repair or replacement based upon defects in components produced by our suppliers; and
- fluctuation in delivery by our suppliers due to changes in demand from us or their other customers.

Any interruption in the supply of components or materials, or our inability to obtain substitute components or materials from alternate sources at acceptable prices in a timely manner, could impair our ability to meet the demand of our customers, which would have an adverse effect on our business.

We forecast sales to determine requirements for components and materials used in our systems, and if our forecasts are incorrect, we may experience delays in shipments or increased inventory costs.

We and our third party manufacturers keep limited materials, components and finished products on hand. To manage our operations with our third party manufacturers and suppliers, we forecast anticipated product orders and material requirements to predict our inventory needs and enter into purchase orders on the basis of these requirements. Several components of our instruments and reagent kits have long lead times. Our limited historical commercial experience and rapid growth may not provide us with enough data to consistently and accurately predict future demand. If our business expands and our demand for

components and materials increase beyond our estimates, our manufacturers and suppliers may be unable to meet our demand. In addition, if we or our third party manufacturers underestimate our component and material requirements, we may have inadequate inventory, which could interrupt, delay, or prevent delivery of our systems to our customers. By contrast, if we overestimate our component and material requirements, we may have excess inventory, which would increase our working capital and decrease our cash. Any of these occurrences would negatively affect our financial performance and business results.

Risks Related to Government Regulation

We market certain of our products as Research Use Only, or RUO, in the United States. Our RUO products support the research and development conducted at institutions and biopharmaceutical companies of potential diagnostic and therapeutic products and services for which they may later pursue investigation and clearance, authorization or approval from regulatory authorities, such as the FDA.

RUO products belong to a separate regulatory classification under a long-standing FDA regulation. From an FDA perspective, products that are intended for research use only and are labeled as RUO are not regulated by the FDA as in vitro diagnostic devices for clinical use, and are therefore not subject to those specific regulatory requirements. RUO products may be used or distributed for research use without first obtaining FDA clearance, authorization or approval. The products must bear the statement: “For Research Use Only. Not for Use in Diagnostic Procedures.” RUO products cannot make any claims related to safety, effectiveness or diagnostic utility, and they cannot be intended for human clinical diagnostic use. Accordingly, a product labeled RUO but intended or promoted for clinical diagnostic use may be viewed by the FDA as adulterated and misbranded under the FDCA and subject to FDA enforcement action. The FDA will consider the totality of the circumstances surrounding distribution and use of an RUO product, including how the product is marketed and to whom, when determining its intended use. If the FDA disagrees with our RUO status for our product, we may be subject to FDA enforcement activities, including, without limitation, requiring us to seek clearance, authorization or approval for our products.

We are currently subject to, and may in the future become subject to additional, U.S. state and federal, and non-U.S. laws and regulations, industry guidelines, and contracts, imposing obligations on how we collect, store, use and process personal information. Our actual or perceived failure to comply with such obligations could harm our business. Ensuring compliance with such laws could also impair our efforts to maintain and expand our customer base, and thereby decrease our revenue.

We are, and may increasingly become, subject to various laws and regulations, as well as contractual obligations and mandatory industry standards relating to data privacy and security in the jurisdictions in which we operate. The regulatory environment related to data privacy and security is increasingly rigorous, with new and constantly changing requirements applicable to our business, and enforcement practices are likely to remain uncertain for the foreseeable future. These laws and regulations may be interpreted and applied differently over time and from jurisdiction to jurisdiction, and it is possible that they will be interpreted and applied in ways that may have a material adverse effect on our business, financial condition, results of operations and prospects.

We are not a business associate under the Health Insurance Portability and Accountability Act of 1996, or HIPAA, and do not receive, access, store, or transmit any individually identifiable health information of any patient; however, we are a covered entity under HIPAA as an employer that sponsors a group health plan for its employees. Therefore, the HIPAA Privacy, Security and Breach Notification Rules apply to our group health plan. We have appointed a HIPAA Privacy Officer and HIPAA Security Officer, train our group health plan employees on HIPAA compliance and ensure that individuals outside of the group health plan functions do not have access to protected health information of our employees. We have also entered into a business associate agreement with our third party administrator to handle medical claims for our group health plan. The HIPAA privacy regulations govern the use and disclosure of protected health information by covered healthcare providers, as well as health insurance plans. They also set forth certain rights that an individual has with respect to his or her protected health information maintained by a covered plan, 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 HIPAA security regulations establish requirements for safeguarding the confidentiality, integrity and availability of protected health

information that is electronically transmitted or electronically stored. A covered entity must also notify HHS and each affected individual of a breach of unsecured protected health information as well as the media if the breach involves more than 500 individuals in a particular jurisdiction. HIPAA violations are subject to civil and criminal penalties.

Despite the fact that we do not currently access, store, receive or transmit any protected health information on behalf of a covered entity which could qualify us as a business associate under HIPAA, from time to time we are asked by a customer to enter into a business associate agreement. To date, we have not entered into any business associate agreements and do not intend to do so as a standard practice. We are in the process of undergoing HITRUST certification and revising our policies and procedures to establish compliance with the HIPAA Security Rule for our commercial business, in the event that we have access to protected health information in the future or if a customer insists that we execute a business associate agreement. We expect that we will complete the necessary reviews and implement the procedures and policies required to fully comply with the elements of HIPAA applicable to a business associate by the end of Q3 of this year. The HIPAA Security Rule regulations establish requirements for safeguarding the confidentiality, integrity and availability of protected health information that is electronically transmitted or electronically stored or electronically stored by a business associate. Under the HIPAA Breach Notification Rule, a business associate must notify a covered entity, within certain required timeframes, of any breach of the security of an individual's protected health information by the business associate or any subcontractor of the business associate.

In the United States, in addition to HIPAA, various federal and state regulators, including governmental agencies like the Federal Trade Commission, or the FTC, have adopted, or are considering adopting, laws and regulations concerning personal information and data security. According to the FTC, failing to take appropriate steps to keep consumers' personal information secure or using or disclosing personal information in violation of a company's privacy notice may constitute unfair or deceptive acts or practices in or affecting commerce in violation of the Federal Trade Commission Act (FTCA.) The FTC expects a company's data security measures to be reasonable and appropriate in light of the sensitivity and volume of consumer information it holds, the size and complexity of its business and the cost of available tools to improve security and reduce vulnerabilities. We may also become subject to additional data privacy and security laws and regulations in the future, and we anticipate that states and potentially, the federal government, may propose or enact legislation to strengthen data privacy and security standards, which may cause us to incur additional costs and expenses to maintain compliance and could subject us to fines, penalties and negative publicity in the event of a breach or violation under any such law or regulation. Certain state laws may be more stringent or broader in scope, or offer greater individual rights, with respect to personal information than federal, international or other state laws, and such laws may differ from each other, all of which may complicate compliance efforts. For example, the California Consumer Privacy Act of 2018, or CCPA, which increases privacy rights for California residents and imposes obligations on companies that process their personal information and meet certain revenue or volume processing thresholds, came into effect on January 1, 2020, and was further amended by the California Privacy Rights Act, or CPRA, on November 3, 2020. Among other things, the CCPA requires covered companies to provide new disclosures to California residents and provide such residents new data protection and privacy rights, including the ability to opt-out of certain sales of personal information. The CCPA provides for civil penalties for violations, as well as a private right of action for certain data breaches. The CPRA significantly modifies the CCPA by expanding residents' rights with respect to certain personal information and creates a new state agency to oversee implementation and enforcement efforts. Many of the CPRA's provisions will become effective on January 1, 2023. This private right of action may increase the likelihood of, and risks associated with, data breach litigation, including class-action litigation. In addition, laws in all 50 U.S. states require businesses to provide notice to individuals if certain of their personal information has been disclosed as a result of a qualifying data breach. State laws are changing rapidly and there is discussion in the U.S. Congress of a new comprehensive federal data privacy law to which we may likely become subject, if enacted.

Internationally, laws, regulations and standards in many jurisdictions apply broadly to the collection, use, retention, security, disclosure, transfer, marketing and other processing of personal information. For example, the EU General Data Protection Regulation, or GDPR, which became effective in May 2018, greatly increased the European Commission's jurisdictional reach of its data privacy and security laws and introduced a broad array of requirements for handling personal data. EU member states are tasked under

the GDPR to enact, and have enacted, certain implementing legislation that adds to and/or further interprets the GDPR requirements and potentially extends our obligations and potential liability for failing to meet such obligations. The GDPR, together with national legislation, regulations and guidelines of the EU member states governing the processing of personal data, impose strict obligations and restrictions on the ability to collect, use, retain, protect, disclose, transfer and otherwise process personal data. In particular, the GDPR includes requirements to establish a legal basis for processing, higher standards for obtaining consent from individuals to process their personal data, more robust disclosures to individuals, a strengthened individual data rights regime, requirements to implement safeguards to protect the security and confidentiality of personal data, data breach notification obligations to appropriate data protection authorities or individuals, limitations on retention and secondary use of information, increased requirements pertaining to health data and additional obligations when entities contract with third-party processors to process personal data. The GDPR allows for fines for certain violations of up to 4% of global annual revenue or €20 million, whichever is greater, and other administrative penalties. Following the withdrawal of the United Kingdom from the European Union, data privacy and security laws that are substantially similar to the GDPR are in effect in the United Kingdom, which carry similar risks and authorize similar fines for certain violations.

Certain legal regimes outside of the United States, including in the United Kingdom and under the GDPR, prohibit the transfer of personal data to the United States unless certain measures are in place, including, for example, executing Standard Contractual Clauses, or historically, relying on the receiving entity's certification under the EU-US and/or Swiss-US Privacy Shield Frameworks, or the Privacy Shield Frameworks. The Privacy Shield Frameworks were invalidated, and the adequacy of Standard Contractual Clauses is now in question, following the Court of Justice of the European Union's July 2020 decision in the so-called Schrems II case (Data Protection Commissioner v. Facebook Ireland Limited, Maximillian Schrems (Case C-311/18)). Due to this evolving regulatory guidance, we are continuing to evaluate the validity of the data transfer mechanisms upon which we rely and we may need to invest in additional technical, legal and organizational safeguards in the future to avoid disruptions to data flows within our business and to and from our customers and service providers. There is no guarantee that any transfer mechanism upon which we rely will be deemed to be valid by the relevant legal authorities, or that mechanisms that are currently deemed to be valid will remain valid in the future. This uncertainty, and its eventual resolution, may increase our costs of compliance, impede our ability to transfer data and conduct our business and harm our business or results of operations.

We use third-party credit card processors to process payments from our customers. Through our agreements with our third-party credit card processors, we are subject to payment card association operating rules, including the Payment Card Industry Data Security Standard, or PCI-DSS, which governs a variety of areas, including how consumers and customers may use their cards, the security features of cards, security standards for processing, data security and allocation of liability for certain acts or omissions, including liability in the event of a data breach. Any change in these rules or standards and related requirements could make it difficult or impossible for us to comply. Additionally, any data breach or failure to hold certain information in accordance with PCI-DSS may have an adverse effect on our business and results of operations.

All of these evolving compliance and operational requirements impose significant costs, such as costs related to organizational changes, implementing additional protection technologies, training employees and engaging consultants and legal advisors, which are likely to increase over time. In addition, such requirements may require us to modify our data processing practices and policies, utilize management's time or divert resources from other initiatives and projects, all of which could have a material adverse effect on our business, financial condition, results of operations and prospects. Any failure or perceived failure by us to comply with any applicable federal, state or similar non-U.S. laws and regulations relating to data privacy and security could result in damage to our reputation, as well as proceedings or litigation by governmental agencies or other third parties, including class action privacy litigation in certain jurisdictions, which would subject us to significant fines, sanctions, awards, injunctions, penalties or judgments. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

As we continue to expand our product and technology offerings and the applications and uses of our products into new fields, we may become subject to government regulation, and the regulatory approval and maintenance process for such products may be expensive, time-consuming and uncertain both in timing and in outcome.

As we continue to expand our product and technology offerings and the applications and uses of our existing products into new fields, certain of our current or future products could become subject to regulation by the FDA, or comparable regulatory authorities, including requirements for regulatory clearance or approval of such products before they can be marketed. Such regulatory approval processes or clearances may be expensive, time-consuming and uncertain, and our failure to obtain or comply with such approvals and clearances could have an adverse effect on our business, financial condition and operating results. The laws, regulations and policies governing the marketing of our products or future products, for example, RUO products, companion diagnostics, or other products and services are extremely complex and in many instances there may be no significant regulatory or judicial interpretations of these laws and regulations. These laws and regulations are subject to interpretation by the relevant regulatory and enforcement officials, and they may interpret them differently than we do. Furthermore, changes to the current regulatory framework, including the imposition of additional or new regulations, including regulation of our products, could arise at any time during the development or marketing of our products, which may negatively affect our ability to obtain or maintain FDA or comparable regulatory approval of our products, if required. Further, if we sell devices for diagnostic purposes, we may in turn be subject to additional healthcare regulation and enforcement by the applicable government agencies. Such laws and regulations include, without limitation, state and federal anti-kickback, fraud and abuse, false claims, data privacy and security and transparency and reporting requirements for payments and transfers of value to physicians and certain other healthcare professionals.

Diagnostic products are regulated as medical devices by the FDA and comparable international agencies and may require either clearance from the FDA following the 510(k) pre-market notification process or pre-market approval from the FDA, in each case prior to marketing. Obtaining the requisite regulatory clearances or approvals can be expensive and may involve considerable delay in our ability to commercialize our products. For example, we may in the future assist in the development of, or perform clinical testing relative to, companion diagnostics which would subject us to much more extensive regulation under FDA law, CMS/CLIA regulations and state laboratory requirements. None of our products are currently offered to customers as medical devices, however, if our products labeled as RUO are used, or could be used, for the diagnosis of disease, the regulatory requirements related to marketing, selling and supporting such products could change or be uncertain, even if such use by our customers is without our consent.

If the FDA or other regulatory authorities assert that any of our products are subject to regulatory clearance or approval, our business, financial condition or results of operations could be adversely affected.

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

We currently have limited international operations, and our business strategy incorporates potentially significant international expansion. We currently maintain relationships with distributors outside of the United States, and may in the future enter into new distributor relationships. We may also extend laboratory capabilities outside of the United States, both directly and possibly indirectly. Doing business internationally involves a number of risks, including:

- multiple, conflicting and changing laws and regulations such as data privacy and security regulations, tax laws, export and import restrictions, tariffs, economic sanctions and embargoes, employment laws, regulatory requirements and other governmental approvals, permits and licenses;
- failure by us or our distributors to obtain approvals to conduct our business in various countries;
- differing respect, and protection for, intellectual property rights in other jurisdictions;
- complexities and difficulties in obtaining intellectual property protection, maintaining, enforcing and defending our intellectual property and proprietary rights and defending against third-party intellectual property claims;

- difficulties in staffing and managing foreign operations;
- logistics and regulations associated with shipping systems and parts and components for systems, consumables and reagent kits, as well as transportation delays;
- travel restrictions that limit the ability of marketing, presales, sales, services and support teams to service customers;
- 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 exposure to foreign currency exchange rate fluctuations;
- international trade disputes that could result in tariffs and other protective measures;
- natural disasters, political and economic instability, including wars, terrorism and political unrest, 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 U.S. Foreign Corrupt Practices Act, or FCPA, its books and records provisions, or its anti-bribery provisions.

Any of these factors could significantly harm our future international expansion and operations and, consequently, our business, financial condition, results of operations and prospects. In addition, certain international markets are subject to significant political and economic uncertainty, including for example the effect of the withdrawal of the United Kingdom from the European Union. Significant political and economic developments in international markets for which we intend to operate, or the perception that any of them could occur, creates further challenges for operating in these markets in addition to creating instability in global economic conditions.

We could be adversely affected by violations of the FCPA and the anti-bribery and anti-corruption laws of the United States or other countries.

We are subject to the FCPA, which among other things prohibits companies and their intermediaries from making payments in violation of law to non-U.S. government officials for the purpose of obtaining or retaining business or securing any other improper advantage. We have engaged independent distributors in the past and currently use independent distributors to sell our platforms and instruments outside of the United States. Our reliance on independent distributors to sell the CODEX and Phenoptics platforms internationally demands a high degree of vigilance in maintaining our policy against participation in corrupt activity, because these distributors could be deemed to be our agents and we could be held responsible for their actions. Other U.S. companies in the biotechnology and biopharmaceutical field have faced criminal penalties under the FCPA for allowing their agents to deviate from appropriate practices in doing business with these individuals. We are also subject to similar anti-bribery laws in the jurisdictions in which we operate, including the United Kingdom's Bribery Act of 2010, which also prohibits commercial bribery and makes it a crime for companies to fail to prevent bribery, and the People's Republic of China anti-bribery laws, including the PRC Anti-Unfair Competition Law amended in 2017, the PRC Criminal Law amended in 2017. These laws are complex and far-reaching in nature, and, as a result, we cannot assure you that we would not be required in the future to alter one or more of our practices to be in compliance with these laws or any changes in these laws or the interpretation thereof. Any violations of these laws, or allegations of such violations, could disrupt our operations, involve significant management distraction, involve significant costs and expenses, including legal fees and could result in a material adverse effect on our business, financial condition, results of operations and prospects. We could also suffer severe penalties, including criminal and civil penalties, disgorgement and other remedial measures.

Our employees, consultants, distributors and commercial partners may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements, and insider trading.

We are exposed to the risk of fraud or other misconduct by our employees, consultants, distributors and commercial partners. Misconduct by these parties could include intentional failures to comply with the applicable laws and regulations in the United States and abroad, report financial information or data accurately or disclose unauthorized activities to us. These laws and regulations may restrict or prohibit a

wide range of pricing, discounting and other business arrangements. Such misconduct could result in legal or regulatory sanctions and cause serious harm to our reputation. It is not always possible to identify and deter employee misconduct, and any other precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses, or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could result in the imposition of significant civil, criminal and administrative penalties, which could have a significant impact on our business. Whether or not we are successful in defending against such actions or investigations, we could incur substantial costs, including legal fees and divert the attention of management in defending ourselves against any of these claims or investigations.

We use biological and hazardous materials that require considerable expertise and expense for handling, storage and disposal and may result in claims against us.

We work with materials, including chemicals, biological agents and compounds that could be hazardous to human health and safety or the environment. Our operations also produce hazardous and biological waste products. Federal, state and local laws and regulations govern the use, generation, manufacture, storage, handling and disposal of these materials and wastes. We are subject to periodic inspections by federal, state and local authorities to ensure compliance with applicable laws. Compliance with applicable environmental laws and regulations is expensive, and current or future environmental laws and regulations may restrict our operations. If we do not comply with applicable regulations, we may be subject to fines and penalties.

In addition, we cannot eliminate the risk of accidental injury or contamination from these materials or wastes, which could cause an interruption of our commercialization efforts, research and development programs and business operations, as well as environmental damage resulting in costly clean-up and liabilities under applicable laws and regulations. In the event of contamination or injury, we could be liable for damages or penalized with fines in an amount exceeding our resources and our operations could be suspended or otherwise adversely affected. Furthermore, environmental laws and regulations are complex, change frequently and have tended to become more stringent. We cannot predict the impact of such changes and cannot be certain of our future compliance.

Risks Related to Intellectual Property

If we are unable to obtain and maintain sufficient patent or other intellectual property protection for our technology, including the CODEX and Phenoptics platforms, or if the scope of the intellectual property protection obtained is not sufficiently broad, our competitors could develop and commercialize products and technology similar or identical to ours, and our ability to successfully commercialize our products and our technology may be impaired.

We rely on patent protection as well as trademark, copyright, trade secret and other intellectual property rights protection and contractual restrictions to protect our proprietary technologies, all of which provide limited protection and may not adequately protect our rights or permit us to gain or keep any competitive advantage. If we fail to obtain or to protect our intellectual and proprietary property, third parties may be able to compete more effectively against us. In addition, we may incur substantial litigation costs in our attempts to recover or restrict use of our intellectual property.

To the extent our intellectual property offers inadequate protection, is found to be invalid or unenforceable, or laws affecting the scope of intellectual property protection and remedial actions change, we would be exposed to a greater risk of direct competition. If our intellectual property does not provide adequate coverage of our own or our competitors' products, our competitive position could be adversely affected, as could our business. Both the patent application process and the process of managing patent disputes can be time-consuming and expensive.

As is the case with other life sciences and biotechnology companies, our success depends in large part on our ability to obtain and maintain protection of the intellectual property we may own solely and jointly with others, particularly patents, in the United States and other countries with respect to our products and technologies. We apply for patents covering our products and technologies and uses thereof, as we deem appropriate. However, obtaining and enforcing patents in our industry is costly, time-consuming and complex,

and we may fail to apply for patents on important products, services and technologies in a timely fashion or at all, or we may fail to apply for patents in potentially relevant jurisdictions. We may not be able to file and prosecute all necessary or desirable patent applications, or maintain, enforce and license any patents that may issue from such patent applications, at a reasonable cost or in a timely manner. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. We may not have the right to control the preparation, filing and prosecution of patent applications, to maintain the rights to patents licensed to or from third parties, or to control enforcement of licensed patent rights. Therefore, these patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business. We may not be able to control the extent of auxiliary rights licensed to other parties by entities from whom we license patent rights, which may affect our ability to exclude other parties from markets and jurisdictions based on those licensed patent rights.

It is possible that none of our pending patent applications will result in issued patents in a timely fashion or at all, and even if patents are granted, they may not provide a basis for intellectual property protection of commercially viable products or services, may not provide us with any competitive advantages, or may be challenged and invalidated by third parties. It is possible that others will design around our current or future patented technologies or that our patents and patent applications may be challenged at the United States Patent and Trademark Office, or USPTO, or in proceedings before the patent offices of other jurisdictions. We may not be successful in defending any such challenges made against our patents or patent applications. We may not be able to intervene or participate in any challenge to patent rights that are licensed by us from another party. Any successful third-party challenge to our patents could result in the unenforceability or invalidity of such patents, in whole or in part, and increased competition to our business. We may have to challenge the patents or patent applications of third parties. The outcome of patent litigation or other proceedings can be uncertain, and any attempt by us to enforce our patent rights against others or to challenge the patent rights of others may not be successful, or, if successful, may take substantial time and result in substantial cost, and may divert our efforts and attention from other aspects of our business.

Furthermore, our patents may be subject to a reservation of rights by one or more third parties. For example, the research resulting in certain of our in-licensed patent rights and technology was funded in part by the U.S. government. As a result, the government may have certain rights, or march-in rights, to such patent rights and technology. When new technologies are developed with government funding, the government generally obtains certain rights in any resulting patents, including a non-exclusive license authorizing the government to use the invention for non-commercial purposes. These rights may permit the government to disclose our confidential information to third parties and to exercise march-in rights to use or allow third parties to use our licensed technology. The government can exercise its march-in rights if it determines that action is necessary because we fail to achieve practical application of the government-funded technology, because action is necessary to alleviate health or safety needs, to meet requirements of federal regulations, or to give preference to U.S. industry. In addition, our rights in such inventions may be subject to certain requirements to manufacture products embodying such inventions in the United States.

The patent positions of life sciences companies can be highly uncertain and involve complex legal and factual questions for which important legal principles remain unresolved. No consistent policy regarding the breadth of claims allowed in such companies' patents has emerged to date in the United States or elsewhere. Courts frequently render opinions in the biotechnology field that may affect the patentability of certain inventions or discoveries. Further, codified patent laws, legal principles, the scope of damages, and remedies for patent infringement can vary widely among jurisdictions, and our business may be affected differentially among those jurisdictions by any verdict, judgment, administrative proceeding, or other decision relating to enforcement of patent rights.

Moreover, the coverage claimed in a patent application can be significantly reduced before the patent is issued, and its scope can be reinterpreted after issuance. Even if patent applications we license or own, currently or in the future, issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors or other third parties from competing with us, or otherwise provide us with any competitive advantage. Any patents that we own may be challenged, narrowed, circumvented or invalidated by third parties. Consequently, we do not know whether our products or other

technologies will be protectable or remain protected by valid and enforceable patents. Our competitors or other third parties may be able to circumvent our patents by developing similar or alternative technologies or products in a non-infringing manner which could harm our business, financial condition and results of operations.

Some of our patents and patent applications may in the future be co-owned with third parties. If we are unable to obtain an exclusive license to any such third-party co-owners' interest in such patents or patent applications, such co-owners may be able to license their rights to other third parties, including our competitors, and our competitors could market competing products and technology. In addition, we may need the cooperation of any such co-owners of our patents in order to enforce such patents against third parties, and such cooperation may not be provided to us. Any of the foregoing could harm our business, financial condition and results of operations.

Additionally, we may find it necessary or prudent to acquire or obtain licenses from third-party intellectual property holders. However, we may be unable to acquire or secure such licenses to any intellectual property rights from third parties that we identify as necessary for our products or any future products we may develop. The acquisition or licensing of third-party intellectual property rights is a competitive area, and our competitors may pursue strategies to acquire or license third-party intellectual property rights that we may consider attractive or necessary. Our competitors may have a competitive advantage over us due to their size, capital resources and greater development and commercialization capabilities. In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us. We also may be unable to acquire or license third-party intellectual property rights on terms that would allow us to make an appropriate return on our investment or at all. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

We heavily depend on intellectual property licensed from third parties, including our license agreements with Stanford for our CODEX product, PKI, Cambridge Research and VisEn Medical Inc. for our Phenoptics product, and our licensors may not always act in our best interest. If such owners do not properly or successfully obtain, maintain or enforce the patents underlying such licenses, or if they retain or license to others any competing rights, our competitive position and business prospects may be adversely affected.

We are dependent on patents, know-how and proprietary technology licensed from others. As a result, any termination of these licenses could result in the loss of significant rights and could harm our ability to commercialize our product candidates. For example, we are a party to an agreement with Stanford pursuant to which we in-license key patents and patent applications for our proprietary CODEX product, as well as possible future product candidates and other technology used in our CODEX product. We are also a party to license agreements with the University of Washington; Caliper Life Sciences, Inc.; and PKI, Cambridge Research, and VisEn Medical Inc., pursuant to in which we have in-licensed important patents that protect key aspects of our current and future technologies.

Our current license agreements impose, and future agreements may impose, various diligence, commercialization, milestone payment, royalty, insurance and other obligations on us and require us to meet development timelines, or to exercise commercially reasonable efforts to develop and commercialize licensed products, in order to maintain the licenses. If we fail to comply with these obligations, our licensors may have the right to terminate our license, in which event we would not be able to further develop or market our CODEX product. For example, our license agreement with Stanford imposes various due diligence, development and commercialization obligations, milestone payments, royalties and other obligations on us.

Certain of our licenses, including certain licenses with Stanford may not provide us with exclusive rights to use the licensed intellectual property and technology, or may not provide us with exclusive rights to use such intellectual property and technology in all relevant fields of use and in all territories in which we may wish to develop or commercialize our technology and product candidates in the future. In addition, the intellectual property portfolio licensed to us by our licensors, including certain intellectual property licensed by Stanford, at least in some respects, may be used by such licensors or licensed to third parties, and such third parties may have certain enforcement rights with respect to such intellectual property. Thus, patents licensed to us could be put at risk of being invalidated or interpreted narrowly in litigation filed by or against our licensors or another licensee or in administrative proceedings brought by or against our

licensors or another licensee in response to such litigation or for other reasons. As a result, we may not be able to prevent competitors or other third parties from developing and commercializing competitive products, including in territories covered by our licenses.

In addition, we may need or desire to obtain additional licenses from our existing licensors and others to advance our research or allow commercialization of product candidates we may develop. In addition, third parties may allege that we require a license to their intellectual property rights to use our software and technology in connection with the exploitation of our products. It is possible that we may be unable to obtain needed or desired additional licenses at a reasonable cost or on reasonable terms, if at all. In such an event, we may be required to expend significant time and resources to redesign our technology, product candidates, or the methods for manufacturing them or to develop or license replacement technology, all of which may not be feasible on a technical or commercial basis. If we are unable to do so, we may be liable for damages, which may be significant, and we may be unable to develop or commercialize the affected technology or product candidates, or face greater risk in the development or commercialization of such technologies and product candidates, which would significantly harm our business, financial condition, results of operations and prospects significantly. We cannot provide any assurances that third-party patents and other intellectual property rights do not exist which might be enforced against our current technology, manufacturing methods, product candidates, or future methods or products resulting in either an injunction prohibiting our manufacture or future sales, or, with respect to our future sales, an obligation on our part to pay royalties and/or other forms of compensation to third parties, which could be significant. Even if we are able to obtain such additional licenses, they may be non-exclusive thereby giving our competitors and other third parties access to the same technology licensed to us.

In addition, we may seek to obtain additional licenses from our licensors and, in connection with obtaining such licenses, we may agree to amend our existing licenses in a manner that may be more favorable to the licensors, including by agreeing to terms that could enable third parties, including our competitors, to receive licenses to a portion of the intellectual property that is subject to our existing licenses and to compete with our product candidates.

For example, some of our future agreements with certain of our third-party research partners may provide that improvements developed in the course of our relationship may be owned solely by either us or our third-party research partner. If we determine that rights to such improvements owned solely by a third-party research partner or other third party with whom we collaborate are necessary to commercialize our products or maintain our competitive advantage, we may need to obtain a license from such third party in order to use the improvements and continue developing, manufacturing or marketing our products. We may not be able to obtain such a license on an exclusive basis, on commercially reasonable terms, or at all, which could prevent us from commercializing our product candidates or allow our competitors or others the chance to access technology that is important to our business.

Our success will depend in part on the ability of our licensors to obtain, maintain, protect and enforce patent protection for our licensed intellectual property, in particular, those patents to which we have secured exclusive rights. Our licensors may not successfully prosecute the patent applications licensed to us. If we or our licensors fail to adequately protect our licensed intellectual property, our ability to commercialize our product candidates and technology could suffer. In addition, we may not have the right to control the maintenance, prosecution, preparation, filing, enforcement, defense and litigation of patents and patent applications that we license from other third parties. For example, in each of our agreements with Stanford; the University of Washington; and PKI, Cambridge Research and VisEn Medical Inc., we do not maintain control over the prosecution and maintenance of the licensed patents. We thus cannot be certain that activities such as the maintenance and prosecution by our licensors have been or will be conducted consistent with our best interests or in compliance with applicable laws and regulations, or will result in valid and enforceable patents and other intellectual property rights. It is possible that our licensors' infringement proceedings or defense activities may be less vigorous than had we conducted them ourselves or may not be conducted in accordance with our best interests. If our licensors fail to maintain such patents or patent applications, determine not to pursue litigation against other companies that are infringing these patents, pursue litigation less aggressively than we would, or lose rights to those patents or patent applications, the rights we have licensed may be reduced or eliminated, and our right to develop and commercialize any of our product candidates that are the subject of such licensed rights and our right to exclude third parties from

commercializing competing products could be adversely affected. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

We are generally also subject to all of the same risks with respect to protection of intellectual property that we license as we are for intellectual property that we own, which are described herein. If we or our licensors fail to adequately protect this intellectual property, our ability to commercialize products could suffer, which could have a material adverse effect on our business, financial condition, results of operations and prospects.

Our products are dependent on intellectual property we license from third parties. If we fail to comply with our obligations under our intellectual property licenses, if the licenses are terminated, or if disputes regarding these licenses arise, we could lose significant rights that are important to our business and could interfere with our ability to operate our business.

Our instruments incorporate intellectual property we license from Stanford, with respect to CODEX, and PKI, Cambridge Research and VisEn Medical Inc., with respect to Phenoptics. Disputes may arise regarding intellectual property subject to a license agreement, including those relating to:

- the scope of rights, if any, granted under the license agreement and other interpretation-related issues;
- our financial and other obligations under the license agreement;
- whether and the extent to which our technology and processes infringe, misappropriate or otherwise violate intellectual property of the licensor that is not subject to the licensing agreement;
- our right to sublicense patent and other rights to third parties under collaborative development relationships;
- our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of our product candidates and what activities satisfy those diligence obligations;
- the inventorship or ownership of inventions and know-how resulting from the creation or use of intellectual property by our licensors and us and our partners; and
- the priority of invention of patented technology.

If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected technology or product candidates.

Our license agreements are, and future license agreements are likely to be, complex, and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology, or increase what we believe to be our financial or other obligations under the relevant agreement, either of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

In spite of our efforts, our current and future licensors might conclude that we have materially breached our obligations under our license agreements and might therefore terminate such license agreements, thereby removing or limiting our ability to develop and commercialize products and technology covered by these license agreements. If these in-licenses are terminated, or if the underlying patents fail to provide the intended exclusivity, competitors would have the freedom to seek regulatory approval of, and to market, products identical or competitive to ours and we may be required to cease our development and commercialization of certain of our product candidates. Moreover, if disputes over intellectual property that we license prevent or impair our ability to maintain other licensing arrangements on commercially acceptable terms, we may be unable to successfully develop and commercialize the affected technology or product candidates. In addition, certain of these license agreements may not be assignable by us without the consent of the respective licensor, which may have an adverse effect on our ability to engage in certain transactions. As a result, any termination of or disputes over our intellectual property licenses could result

in the loss of our ability to develop and commercialize our product candidates, or we could lose other significant rights, experience significant delays in the development and commercialization of our product candidates, or incur liability for damages, any of which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

In addition, a third party may in the future bring claims that our performance under our license agreements, including our sponsoring of clinical trials, interferes with such third party's rights under its agreement with one of our licensors. If any such claim were successful, it may adversely affect our rights and ability to advance our product candidates as clinical candidates or subject us to liability for monetary damages, any of which would have an adverse effect on our business, financial condition, results of operations and prospects.

Changes in patent law and its interpretation in the United States and other jurisdictions could diminish the value of patents in general, thereby impairing our ability to protect our products and technologies.

Changes in either the patent laws or in interpretations of patent laws in the United States or other countries or regions may diminish the value of our intellectual property. We cannot predict the breadth of claims that may be allowed or enforced in our patents or in third-party patents. We may not develop additional proprietary products, methods and technologies that are patentable.

Assuming that other requirements for patentability are met, prior to March 16, 2013, in the United States, the first to invent the claimed invention was entitled to the patent, while outside the United States, the first to file a patent application was entitled to the patent. On or after March 16, 2013, under the Leahy-Smith America Invents Act, or the America Invents Act, enacted in September 2011, the United States transitioned to a first-inventor-to-file system in which, assuming that other requirements for patentability are met, the first inventor to file a patent application will be entitled to the patent on an invention regardless of whether a third party was the first to invent the claimed invention. A third party that files a patent application in the USPTO on or after March 16, 2013, but before us could therefore be awarded a patent covering an invention of ours even if we had made the invention before it was made by such third party. This will require us to be cognizant of the time from invention to filing of a patent application. Since patent applications in the United States and most other countries are confidential for a period of time after filing or until issuance, we cannot be certain that we or our licensors were the first to either file any patent application related to our products or technologies or invent any of the inventions claimed in our or our licensors' patents or patent applications.

The America Invents Act also included a number of significant changes that affect the way patent applications are prosecuted and also may affect patent litigation. These include allowing third-party submission of prior art to the USPTO during patent prosecution and additional procedures to attack the validity of a patent by USPTO-administered post-grant proceedings, including post-grant review, *inter partes* review and derivation proceedings. Because of a lower evidentiary standard in USPTO proceedings compared to the evidentiary standard in United States federal courts necessary to invalidate a patent claim, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action. Accordingly, a third party may attempt to use the USPTO procedures to invalidate our patent claims that would not have been invalidated if first challenged by the third party as a defendant in a district court action. Therefore, the America Invents Act and its implementation have increased the uncertainties and costs surrounding the prosecution of our owned or in-licensed patent applications and the enforcement or defense of our owned or in-licensed issued patents.

In addition, the patent position of companies in the biotechnology field is particularly uncertain. Various courts, including the United States Supreme Court, have rendered decisions that affect the scope of patentability of certain inventions or discoveries relating to biotechnology. These decisions state, among other things, that a patent claim that recites an abstract idea, natural phenomenon or law of nature (for example, the relationship between particular genetic variants and cancer) are not themselves patentable. Precisely what constitutes a law of nature or abstract idea is uncertain and continues to evolve in the courts, and it is possible that certain aspects of our technology could be considered natural laws. Accordingly, the evolving statutory and case law in the United States may adversely affect our ability to obtain patents and may

facilitate third-party challenges to any owned or licensed patents. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

Issued patents covering our products and technologies could be found invalid or unenforceable if challenged or unenforceable if challenged in court or before administrative bodies in the United States or abroad, which could harm our business, financial condition and results of operations.

The issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability. Our patents or patent applications (including licensed patents) may be challenged at the USPTO or foreign patent offices in opposition, derivation, reexamination, *inter partes* review, post-grant review, interference or other proceedings. Any successful third-party challenge to our patents could result in the unenforceability or invalidity of such patents, in whole or in part, which may lead to increased competition to our business, which could harm our business. In addition, in patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness or non-enablement. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the USPTO, or made a misleading statement, during prosecution. The outcome following legal assertions of invalidity and unenforceability during patent litigation is unpredictable. If a defendant were to prevail on a legal assertion of invalidity or unenforceability, we would lose at least part, and perhaps all, of the patent protection on certain aspects of our products and platform technologies. In addition, if the breadth or strength of protection provided by our patents and patent applications is threatened, regardless of the outcome, it could dissuade companies from collaborating with us to license, develop or commercialize current or future products.

We may not be aware of all third-party intellectual property rights potentially relating to our products. Publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until approximately 18 months after filing or, in some cases, not until such patent applications issue as patents. We might not have been the first to make the inventions covered by each of our pending patent applications and we might not have been the first to file patent applications for these inventions. To determine the priority of these inventions, we may have to participate in interference proceedings, derivation proceedings or other post-grant proceedings declared by the USPTO or foreign patent offices that could result in substantial cost to us. The outcome of such proceedings is uncertain. No assurance can be given that third-party patent applications will not have priority over our patent applications. In addition, changes to the patent laws of the United States allow for various post-grant opposition proceedings that have not been extensively tested, and their outcome is therefore uncertain. Furthermore, if third parties bring these proceedings against our patents, we could experience significant costs and management distraction.

In addition, if we initiate legal proceedings against a third party to enforce a patent covering our products, the defendant could counterclaim that such patent is invalid or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness or non-enablement. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the USPTO or made a misleading statement during prosecution. Defenses of these types of claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business. Third parties may also raise claims challenging the validity or enforceability of our patents before administrative bodies in the United States or abroad, even outside the context of litigation, including through re-examination, post-grant review, *inter partes* review, interference proceedings, derivation proceedings and equivalent proceedings in foreign jurisdictions (such as opposition proceedings). Such proceedings could result in the revocation of, cancellation of or amendment to our patents in such a way that they no longer cover our products or technologies. The outcome for any particular patent following legal assertions of invalidity and unenforceability is unpredictable. With respect to the validity question, for example, we cannot be certain that there is no invalidating prior art, of which we and the patent examiner were unaware during prosecution. If a defendant or other third party were to prevail on a legal assertion of invalidity or unenforceability, we would lose at least part, and perhaps all, of the patent

protection on our products and technology. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

Our rights to develop and commercialize our products and technologies are subject, in part, to the terms and conditions of licenses granted to us by others.

We have in-licensed certain intellectual property rights from third parties, including Stanford and the University of Washington, with respect to our CODEX platform, and PKI, Cambridge Research and VisEn Medical Inc. with respect to our Phenoptics platform, and we may license intellectual property rights from others in the future. See "Business — Licenses" for more information regarding such agreements. If, for any reason, our license agreements are terminated or we otherwise lose the rights associated with such licenses, it could adversely affect our business. Our current and any future license agreements may impose various development, commercialization, funding, diligence, sublicensing, insurance, patent prosecution and enforcement or other obligations on us, as well as milestone, royalty, annual maintenance and other payment obligations. If we breach any material obligations, or use the intellectual property licensed to us in an unauthorized manner, or if, in spite of our efforts, a collaborator or licensor concludes that we have materially breached our obligations under such agreement, we may be required to pay damages and the licensor may have the right to terminate the license, which could result in us being unable to develop, manufacture and commercialize products that are covered by the licensed technology or having to negotiate new or reinstated licenses on less favorable terms, or enable a competitor or other third party to gain access to the licensed technology.

Licensing of intellectual property is of high importance to our business and involves complex legal, business and scientific issues. Disputes may arise between us and our licensors regarding intellectual property subject to a license agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- our compliance with reporting and financial obligations under our license agreements;
- whether and the extent to which our products and technologies infringe on, misappropriate or otherwise violate intellectual property of the licensor that is not subject to the license agreement;
- our right to sublicense the applicable intellectual or proprietary rights to third parties;
- our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of our products and technologies, and what activities satisfy those diligence obligations;
- our right to transfer or assign the license;
- the inventorship and/or ownership of patents, inventions, know-how and other intellectual property and proprietary rights resulting from activities performed by our licensors, us and our partners; and
- the priority of invention of patented technology.

These agreements may be complex, and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology, or increase what we believe to be our financial or other obligations under the relevant agreement. Moreover, if disputes over intellectual property that we have licensed prevent or impair our ability to maintain our licensing arrangements on acceptable terms, we may not be able to successfully develop and commercialize the affected product candidates. In addition, certain of our agreements may limit or delay our ability to consummate certain transactions, may impact the value of those transactions, or may limit our ability to pursue certain activities. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

If we cannot acquire or license rights to use technologies on reasonable terms or at all, we may not be able to commercialize our current or any future products or technologies.

In the future, we may identify third-party intellectual property and technology we may need to license in order to engage in our business, including to develop or commercialize new products or technologies, and

the growth of our business may depend in part on our ability to acquire, in-license or use this technology. However, such licenses may not be available to us on acceptable terms or at all. The licensing or acquisition of third-party intellectual property rights is a competitive area, and several more established companies may pursue strategies to license or acquire third-party intellectual property rights that we may consider attractive or necessary. These established companies may have a competitive advantage over us due to their size, capital resources and greater development or commercialization capabilities. In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us. Even if such licenses are available, we may be required to pay the licensor in return for the use of such licensor's technology, including lump-sum payments, ongoing maintenance fees, payments based on certain milestones such as development and regulatory events and sales volumes, or royalties based on sales of our platform. In addition, such licenses may be non-exclusive, which could give our competitors and other third parties access to the same intellectual property licensed to us. We may also need to acquire or negotiate licenses to patents or patent applications before or after introducing a commercial product. The acquisition and licensing of third-party patent and other intellectual property and proprietary rights is a competitive area, and other companies may also be pursuing strategies to acquire or license such rights that we may consider attractive. Our business, financial condition, results of operations and prospects could be materially and adversely affected if we are unable to enter into necessary agreements on acceptable terms or at all, if any necessary licenses are subsequently terminated, if the licensors fail to abide by the terms of the licenses or fail to prevent infringement, misappropriation or other violation by third parties, or if the acquired or licensed patents or other rights are found to be invalid or unenforceable. Moreover, we could encounter delays in the introduction of products or services while we attempt to develop alternatives. Defense of any lawsuit or failure to obtain any of these licenses on favorable terms could prevent us from commercializing our current and any future products and technologies. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

We have limited foreign intellectual property rights and we may not be able to protect our intellectual property rights throughout the world, which could harm our business, financial condition and results of operations.

We have limited intellectual property rights outside the United States. Filing, prosecuting and defending patents on our products, technologies, instruments and workflows in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as the laws of the United States, and we may encounter difficulties in protecting and defending such rights in foreign jurisdictions. Consequently, we may not be able to prevent third parties from practicing our inventions in some or all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors or other third parties may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and may also export infringing products to territories where we have patent protection, but enforcement is not as strong as in the United States. These products may compete with our products. Our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing. In addition, certain countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to other parties. Furthermore, many countries limit the enforceability of patents against other parties, including government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of any patents.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of many other countries do not favor the enforcement of patents and other intellectual property and proprietary protection, particularly those relating to biotechnology, which could make it difficult for us to stop the infringement, misappropriation or other violation of our intellectual property rights including infringement of our patents in such countries. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial cost and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing, and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate, or that are initiated against us, and the damages or other remedies awarded, if any, may not be commercially meaningful. In addition, changes in the law and legal decisions by courts in the United States and foreign countries may affect our ability to

obtain adequate protection for our products, services and other technologies and the enforcement of intellectual property. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

Many countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In addition, many countries limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of such patent. If we are forced to grant a license to third parties with respect to any patents relevant to our business, our competitive position may be impaired, and our business, financial condition and results of operations may be harmed.

If we are unable to protect the confidentiality of our trade secrets, the value of our technology could be materially adversely affected and our business could be harmed.

We rely on trade secrets and confidentiality agreements to protect our unpatented know-how, technology and other proprietary information, including parts of our technology platforms, and to maintain our competitive position. However, trade secrets and know-how can be difficult to protect. In addition to pursuing patents on our technology, we seek to protect our intellectual property and proprietary technology by entering into agreements, including confidentiality agreements, non-disclosure agreements and intellectual property assignment agreements, with our employees, consultants, academic institutions, corporate partners and, when needed, our advisors. However, we cannot be certain that such agreements have been entered into with all relevant parties. We therefore cannot be certain that our trade secrets and other confidential proprietary information will not be disclosed or that competitors or other third parties will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. For example, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Such agreements may not be enforceable or may not provide meaningful protection for our trade secrets or other proprietary information in the event of unauthorized use or disclosure or other breaches of the agreements, and we may not be able to prevent such unauthorized disclosure, which could adversely impact our ability to establish or maintain a competitive advantage in the market. If we are required to assert our rights against such party, it could result in significant cost and distraction. Depending upon the parties involved in such a breach, the available remedies may not provide adequate compensation for the value of any proprietary information disclosed to a third party.

Monitoring unauthorized disclosure is difficult, and we do not know whether the steps we have taken to prevent such disclosure are, or will be, adequate. If we were to attempt to enforce a claim that a third party had illegally obtained and was using our trade secrets, it would be expensive and time-consuming, and the outcome would be unpredictable. In addition, the scope of protection for trade secrets outside the United States varies widely and may be significantly less than in the United States, and damages and other remedies available for improper disclosure of proprietary information can differ substantially from those in the United States, and in some jurisdictions may not be available at all.

We also seek to preserve the integrity and confidentiality of our confidential proprietary information by maintaining physical security of our premises and physical and electronic security of our information technology systems, but it is possible that these security measures could be breached. If any of our confidential proprietary information were to be lawfully obtained or independently developed by a competitor or other third party, absent patent protection, we would have no right to prevent such competitor from using that technology or information to compete with us, which could harm our competitive position. If any of our trade secrets were to be disclosed to or independently discovered by a competitor or other third party, it could harm our business, financial condition, results of operations and prospects.

We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed trade secrets or other confidential information of their former employers or other third parties or claims asserting ownership of what we regard as our own intellectual property.

We have employed and expect to employ individuals who were previously employed at universities or other companies, including our competitors or potential competitors. Although we try to ensure that our

employees, consultants, advisors and independent contractors do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that our employees, advisors, consultants or independent contractors have deliberately, inadvertently or otherwise used or disclosed intellectual property, including trade secrets or other proprietary information of their former employers or other third parties, or to claims that we have improperly used or obtained such trade secrets. Litigation may be necessary to defend against these claims. If we fail in defending such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights and face increased competition to our business. A loss of key research personnel work product could hamper or prevent our ability to commercialize potential products, which could harm our business. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to management.

In addition, while it is our policy to require our employees and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that we regard as our own. The assignment of intellectual property rights may not be self-executing, or the assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property. Any of the foregoing could harm our business, financial condition, results of operations and prospects.

We may not be able to protect and enforce our trademarks and trade names, or build name recognition in our markets of interest thereby harming our competitive position.

The registered or unregistered trademarks or trade names that we own may be challenged, infringed, circumvented, declared generic, lapsed or determined to be infringing on or dilutive of other marks. We may not be able to protect our rights in these trademarks and trade names, which we need in order to build name recognition. In addition, third parties have filed, and may in the future file, for registration of trademarks similar or identical to our trademarks, thereby impeding our ability to build brand identity and possibly leading to market confusion. If they succeed in registering or developing common law rights in such trademarks, and if we are not successful in challenging such rights, we may not be able to use these trademarks to develop brand recognition of our technologies, products or services. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of our registered or unregistered trademarks or trade names. Further, we may in the future be required to enter into agreements with owners of such third-party trade names or trademarks to avoid potential trademark litigation which may limit our ability to use our trade names or trademarks in certain fields of business.

We have not yet registered certain of our trademarks in all of our potential markets, although we have registered 10 trademarks in the United States as well as certain of our trademarks outside of the United States. If we apply to register these trademarks in other countries, and/or other trademarks in the United States and other countries, our applications may not be allowed for registration in a timely fashion or at all; and further, our registered trademarks may not be maintained or enforced. In addition, opposition or cancellation proceedings have been, or may in the future be, filed against our trademark applications and registrations, and our trademarks may not survive such proceedings. In addition, third parties may file first for our trademarks in certain countries. If they succeed in registering such trademarks, and if we are not successful in challenging such third-party rights, we may not be able to use these trademarks to market our products and technologies in those countries. If we do not secure registrations for our trademarks, we may encounter more difficulty in enforcing them against third parties than we otherwise would. If we are unable to establish name recognition based on our trademarks and trade names, we may not be able to compete effectively, which could harm our business, financial condition, results of operations and prospects. Over the long-term, if we are unable to establish name recognition based on our trademarks, then our marketing abilities may be materially adversely impacted.

We may be subject to claims challenging the ownership or inventorship of our patents and other intellectual property and, if unsuccessful in any of these proceedings, we may be required to obtain licenses from third parties, which may not be available on commercially reasonable terms, or at all, or to cease the development, manufacture and commercialization of one or more of our products.

We or our licensors may be subject to claims that former employees, collaborators or other third parties have an interest in our owned or in-licensed patents, trade secrets or other intellectual property as an

inventor or co-inventor. For example, we or our licensors may have inventorship disputes arise from conflicting obligations of employees, consultants or others who are involved in developing our products.

Litigation may be necessary to defend against these and other claims challenging inventorship of our or our licensors' owned or in-licensed patents, trade secrets or other intellectual property. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, intellectual property that is important to our systems, including our software, workflows, consumables and reagent kits. If we or our licensors were to lose exclusive ownership of such intellectual property, other owners may be able to license their rights to other third parties, including our competitors. We also may be required to obtain and maintain licenses from third parties, including parties involved in any such disputes. Such licenses may not be available on commercially reasonable terms, or at all, or may be non-exclusive. If we are unable to obtain and maintain such licenses, we may need to cease the development, manufacture and commercialization of one or more of our products. The loss of exclusivity or the narrowing of our patent claims could limit our ability to stop others from using or commercializing similar or identical technology and products. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees. Any of the foregoing could harm our business, financial condition, results of operations and prospects.

We may become involved in litigation related to intellectual property, which could be time-intensive and costly and may adversely affect our business, financial condition, results of operations and prospects, and may require us to pay damages, or prevent us from making our existing or future products.

In recent years, there has been significant litigation in the United States involving intellectual property rights. Our commercial success depends in part upon our ability and that of our contract manufacturers and suppliers to manufacture, market, and sell our products and to use our proprietary technologies without infringing, misappropriating or otherwise violating the proprietary rights or intellectual property of third parties. We may in the future be involved in litigation or actions at the USPTO with various third parties that claim we or our partners or customers using our solutions and services have infringed, misappropriated, misused or otherwise violated other parties' intellectual property rights. We expect that the number of such claims may increase as the number of our products, instruments, workflows, and the level of competition in our industry segments, grow. Any claim of infringement, misappropriation or other violation, regardless of its validity, could harm our business by, among other things, resulting in time-consuming and costly litigation, diverting management's time and attention from the development of the business, requiring the payment of monetary damages (including treble damages and attorneys' fees in circumstances where infringement of patent rights is deemed to be willful) or royalty payments, or result in potential or existing customers delaying purchases of our products or entering into engagements with us pending resolution of the dispute.

As we move into new markets and applications for our platforms, incumbent participants in such markets may assert their patents and other intellectual property and proprietary rights against us as a means of slowing our entry into such markets or as a means to extract substantial license and royalty payments from us. Our competitors and others may now and, in the future, have significantly larger and more mature patent portfolios than we currently have. In addition, future litigation may involve patent holding companies or other adverse patent owners who have no relevant product or service revenue and against whom our own patents may provide little or no deterrence or protection. Therefore, our commercial success may depend in part on our ability to avoid infringing, misappropriating or otherwise violating the patents or other intellectual property and proprietary rights of third parties, or our ability to prove the invalidity or unenforceability of such rights.

Our research, development and commercialization activities may in the future be subject to claims that we infringe, misappropriate or otherwise violate patents or other intellectual property or proprietary rights owned or controlled by third parties. There is a substantial amount of patent challenges and other litigation involving intellectual property and proprietary rights, both within and outside the United States, in the biotechnology industry, including patent infringement lawsuits, interferences, *inter partes* review, *ex parte* review, and post-grant review proceedings before the USPTO and corresponding proceedings (such as oppositions) in foreign patent offices. Numerous U.S. and foreign issued patents and pending patent

applications owned by third parties exist in the fields in which we are developing products. As the biotechnology industry expands and more patents are issued, the risk increases that our products may be subject to claims of infringement of the patent rights of third parties. Numerous significant intellectual property issues have been litigated, are being litigated and will likely continue to be litigated, between existing and new participants in our existing and targeted markets, and one or more third parties may assert that our products or services infringe, misappropriate or otherwise violate their intellectual property or proprietary rights as part of a business strategy to impede our successful entry into or growth in those markets.

Third parties may assert that we are employing their proprietary technology without authorization. In addition, we may in the future receive correspondence from third parties referring to the relevance of such third parties' intellectual property to our technology, our workflows or our advanced automated systems. Because patent applications can take many years to issue, there may be currently pending patent applications which may later result in issued patents that our current or future products and services may be accused of infringing. In addition, we expect our competitors and other third parties may have patents or other intellectual property rights or may in the future obtain patents or other intellectual property rights and allege that making, having made, using, selling, offering to sell or importing our platforms, or the systems, workflows, consumables and reagent kits that comprise our platforms, infringe, misappropriate or otherwise violate these patents and other intellectual property rights. Pending patent applications that may or may not have been published can, subject to certain limitations, be later amended in a manner that may be alleged to cover our platforms, including our products, instruments and workflows. Future patent applications that are related to currently pending patent applications filed by third parties may also be alleged to cover our products, instruments and workflows.

Under the applicable laws of various jurisdictions, the scope of a patent claim is determined by a variety of factors which can include, but are not limited to, an interpretation of statutes, decisions of courts of competent jurisdiction, the written disclosure in a patent, the patent's prosecution history, and an understanding of the scope of knowledge available to a person of ordinary skill in the particular art to which the patent claim pertains at the earliest effective priority date of the patent claim. These various factors can be weighed differently in different jurisdictions, and some may not be taken into account at all. Our interpretation of the meaning or the scope of one or more claims of an issued patent or a pending application may be incorrect, which may negatively impact our ability to market our products. We may incorrectly determine that our products are not covered by third-party patent claims or may incorrectly predict whether a third party's pending application will issue with claims of relevant scope. Our determination of the expiration date of any patent in the United States or abroad that we consider relevant may be incorrect, which may negatively impact our ability to develop and market our products. In order to successfully challenge the validity of a U.S. patent in federal court, we would need to overcome a presumption of validity. As this burden is a high one requiring us to present clear and convincing evidence as to the invalidity of any such U.S. patent claim, there is no assurance that a court of competent jurisdiction would invalidate the claims of any such U.S. patent.

Even if we believe third-party intellectual property claims are without merit, there can be no assurance that we will prevail in any suit initiated against us by third parties, successfully reach a settlement, or otherwise resolve patent or other intellectual property-related claims. Third parties making claims against us may be able to obtain injunctive or other relief, which could block our ability to develop, commercialize and sell products or services, import or export products, components, reagents and other articles, and could result in the award of substantial damages against us, including treble damages and attorney's fees if we are found to have willfully infringed a patent. In the event of a successful claim of infringement, misappropriation or other violation against us, we may be required to pay damages and ongoing royalties, and obtain one or more licenses from third parties, or be prohibited from selling certain products or services. We may not be able to obtain these licenses on acceptable or commercially reasonable terms, if at all, or these licenses may be non-exclusive, which could result in our competitors or other third parties gaining access to the same intellectual property. In addition, we could encounter delays and incur significant costs in product or service introductions while we attempt to develop alternative products or services or redesign our products or services in order to avoid infringing, misappropriating or otherwise violating third-party patents or other intellectual property and proprietary rights. Defense of any lawsuit or failure to obtain any of these licenses or to develop a workaround could prevent us from commercializing our products and technologies, and

the prohibition of sale or the threat of the prohibition of sale of any of our products or technologies could materially affect our business and our ability to gain market acceptance for our products and technologies.

In addition, our agreements with some of our customers, suppliers or other entities with whom we do business require us to defend or indemnify these parties to the extent they become involved in infringement claims, including the types of claims described above. We could also voluntarily agree to defend or indemnify third parties in instances where we are not obligated to do so if we determine it would be important to 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. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

Intellectual property litigation could cause us to spend substantial resources, distract our personnel from their normal responsibilities and result in negative publicity and other harms.

Litigation or other legal proceedings relating to intellectual property claims, even if resolved in our favor, may cause us to incur substantial costs and divert the attention of our management and technical personnel from their normal responsibilities in defending against any of these claims. Parties making claims against us may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. Such litigation or proceedings could substantially increase our operating costs and reduce the resources available for development activities or any future sales, marketing, or distribution activities. We may not have sufficient financial or other resources to conduct such litigation or proceedings adequately. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources and more mature and developed intellectual property portfolios. Uncertainties resulting from the initiation and continuation of intellectual property proceedings could harm our ability to compete in the marketplace. In addition, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. There also could be public announcements of the results of hearings, motions, or other interim proceedings or developments, and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Any of the foregoing could harm our business, financial condition, results of operations and prospects.

We may become involved in lawsuits to protect or enforce our intellectual property, which could be expensive, time-consuming and unsuccessful.

Third parties, including our competitors, could infringe, misappropriate or otherwise violate our intellectual property and proprietary rights. Monitoring unauthorized use of our intellectual property is difficult and costly. From time to time, we seek to analyze our competitors' products and services, and may in the future seek to enforce our rights against potential infringement, misappropriation or violation of our intellectual property. However, the steps we have taken to protect our proprietary rights may not be adequate to enforce our rights as against such infringement, misappropriation or other violation of our intellectual property. We may not be able to detect unauthorized use of, or take appropriate steps to enforce, our intellectual property rights. Any inability to meaningfully enforce our intellectual property rights could harm our ability to compete and reduce demand for our products and services.

Litigation may be necessary for us to enforce our patent and other proprietary rights or to determine the scope, coverage and validity of the proprietary rights of others. We are not currently engaged in any lawsuits based upon allegations of infringement, misappropriation or other violation of intellectual property or proprietary rights. If we become engaged in litigation related to intellectual property rights and we do not prevail in such legal proceedings, we may be required to pay damages and we may lose significant intellectual property protection for our products or services, such that competitors could copy our products or services. Any litigation that may be necessary in the future could result in substantial costs and diversion of resources and could have a material adverse effect on our business, financial condition, results of operations and prospects. In any lawsuit we bring to enforce our intellectual property rights, a court may refuse to the stop the other party from using the technology at issue on grounds that our intellectual property rights do not cover the technology in question. Further, in such proceedings, the defendant could counterclaim that our intellectual property is invalid or unenforceable and the court may agree, in which case we could lose valuable

intellectual property rights. The outcome in any such lawsuits are unpredictable. Even if we do prevail in any future litigation related to intellectual property rights, the cost and time requirements of the litigation could negatively impact our financial results.

Obtaining and maintaining our patent protection depends on compliance with various required procedures, document submissions, fee payments and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

Periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on patents and/or applications will be due to be paid to the USPTO and various governmental patent agencies outside of the United States at several stages over the lifetime of our patents and/or applications. We have systems in place to remind us to pay these fees, and we engage an outside service and rely on our outside counsel to pay these fees due to non-U.S. patent agencies. The USPTO and various non-U.S. governmental patent agencies also require compliance with a number of procedural, documentary and other similar provisions during the patent application process. We employ reputable law firms and other professionals to help us comply, but we also may be dependent on our licensors to take the necessary action to comply with these requirements with respect to our licensed intellectual property. In many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. However, there are situations in which non-compliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, our competitors and other third parties may be able to enter the market without infringing our patents, which could have a material adverse effect on our business, financial condition, results of operations and prospects.

Patent terms may be inadequate to protect our competitive position on our products for an adequate amount of time.

Patents have a limited lifespan. In the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest claimed priority date. Modifications to this lifetime may occur, but the life of a patent, and the protection it affords, is limited. Even if patents covering our products are obtained, once the patent term has expired, we may be open to competition from competitive products. If one of our products requires extended development, testing and/or regulatory review, patents protecting such products might expire before or shortly after such products are commercialized. As a result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours within a commercially meaningful window.

Our use of "open source" software could adversely affect our ability to offer our products and technologies and subject us to possible litigation.

We use open source software in connection with our products and technologies. Companies that incorporate open source software into their technologies have, from time to time, faced claims challenging the use of open source software and/or compliance with open source license terms. As a result, we could be subject to suits by parties claiming ownership of what we believe to be open source software or claiming non-compliance with open source licensing terms. Some open source software licenses require users who distribute software containing open source software to publicly disclose all or part of the source code to such software and/or make available any derivative works of the open source code, which could include valuable proprietary code of the user, on unfavorable terms or at no cost. While we monitor our use of open source software and try to ensure that none is used in a manner that would require us to disclose our internally developed source code or that would otherwise breach the terms of an open source agreement, such use could inadvertently occur, in part because open source license terms are often ambiguous. In addition to risks related to license requirements, use of certain open source software can lead to greater risks than use of third-party commercial software, as open source licensors generally do not provide warranties or controls on the origin of software which, thus, may contain security vulnerabilities or infringing or broken code. Any requirement to publicly disclose our internally developed source code or pay damages for breach of contract could have a material adverse effect on our business, financial condition, results of operations and prospects and could help our competitors develop products and technologies that are similar to or better than ours.

Intellectual property rights do not necessarily address all potential threats.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations and may not adequately protect our business or permit us to maintain our competitive advantage. For example:

- others may be able to make products and technologies that are similar to any products and technologies we may develop but that are not covered by the claims of the patents that we own or license;
- we, or our current or future license partners or collaborators, might not have been the first to make the inventions covered by our owned or licensed issued patents or pending patent applications;
- we, or our current or future license partners or collaborators, might not have been the first to file patent applications covering certain of our or their inventions;
- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our owned or licensed intellectual property rights;
- it is possible that our current and future owned or licensed pending patent applications will not lead to issued patents;
- it is possible that there are prior public disclosures that could invalidate our issued patents, or parts of our issued patents;
- it is possible that there are unpublished applications or patent applications maintained in secrecy that may later issue with claims covering our product candidates or technology similar to ours;
- the claims of our patent applications, if and when issued, may not cover our products or technologies;
- the laws of foreign countries may not protect our proprietary rights or the proprietary rights of license partners or current or future collaborators to the same extent as the laws of the United States;
- the inventors of our patent applications may become involved with competitors, develop products or processes that design around our patents, or become hostile to us or the patents or patent applications on which they are named as inventors;
- we engage in scientific collaborations and will continue to do so in the future, and our collaborators may develop adjacent or competing products that are outside the scope of our patents;
- any products or technologies we develop may be covered by third parties' patents or other exclusive rights;
- issued patents that we hold rights to may be held invalid or unenforceable, including as a result of legal challenges by our competitors;
- our competitors might conduct research and development activities in countries where we do not have patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- we may not develop additional proprietary technologies that are patentable;
- the patents of others may harm our business; and
- we may choose not to file a patent in order to maintain certain trade secrets or know-how, and a third party may subsequently file a patent covering such intellectual property.

Should any of these events occur, they could have a material adverse effect on our business, financial condition, results of operations and prospects.

Risks Related to Ownership of Our Common Stock and this Offering

There has been no prior public market for our common stock and an active trading market may not develop.

Prior to this offering, there has been no public market for our common stock. An active trading market may not develop following completion of this offering or, if developed, may not be sustained. The

lack of an active trading market may impair the value of your shares and your ability to sell your shares at the time you wish to sell them. An inactive trading market may also impair our ability to raise capital by selling shares of common stock or to acquire other complementary products, technologies or businesses by using our shares of common stock as consideration.

Upon closing of this offering, we expect that our common stock will be listed on Nasdaq. If we fail to satisfy the continued listing standards of Nasdaq, however, we could be de-listed, which would negatively impact the price of our common stock.

We expect that the price of our common stock will fluctuate substantially and you may not be able to sell the shares you purchase in this offering at or above the offering price.

The initial public offering price for the shares of our common stock sold in this offering is determined by negotiation between the representatives of the underwriters and us. This price may not reflect the market price of our common stock following this offering. In addition, the market price of our common stock is likely to be highly volatile and may fluctuate substantially due to many factors, including:

- actual or anticipated fluctuations in our financial condition and operating results, including fluctuations in our quarterly and annual results;
- the introduction of new products or product enhancements by us or others in our industry;
- variances in our product and system reliability;
- overall conditions in our industry and the markets in which we operate;
- disputes or other developments with respect to our or others' intellectual property or proprietary rights;
- actual or anticipated changes in our operating results or growth rate as a result of our competitors' operating results;
- our ability to develop, obtain any required regulatory clearance or approval for, and market new and enhanced products on a timely basis;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- product liability claims or other litigation;
- announcement or expectation of additional financing effort;
- sales of our common stock by us or our stockholders;
- share price and volume fluctuations attributable to inconsistent trading volume levels of our shares;
- media exposure of our products or of those of others in our industry;
- the COVID-19 pandemic and its impact on our ability to receive products and supplies from third parties and our ability to sell our products;
- changes in applicable governmental regulations or in the status of our regulatory approvals or applications;
- changes in earnings estimates or recommendations by securities analysts; and
- general market conditions and other factors, including factors unrelated to our operating performance or the operating performance of our competitors.

In recent years, the stock markets generally have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of listed companies. Broad market and industry factors may significantly affect the market price of our common stock, regardless of our actual operating performance. These fluctuations may be even more pronounced in the trading market for our common stock shortly following this offering. If the market price of shares of our common stock after this offering does not ever exceed the initial public offering price, you may not realize any return on your investment in us and may lose some or all of your investment.

In addition, in the past, class action litigation has often been instituted against companies whose securities have experienced periods of volatility in market price. Securities litigation brought against us following volatility in our stock price, regardless of the merit or ultimate results of such litigation, could result in substantial costs, which would hurt our financial condition and operating results and divert management's attention and resources from our business.

Future sales of our common stock in the public market could cause our share price to fall.

Sales of a substantial number of shares of our common stock in the public market after this offering, or the perception that these sales might occur in large quantities, could cause the market price of our common stock to decline and could impair our ability to raise capital through the sale of additional equity securities. Upon the closing of this offering, we will have 35,689,344 shares of common stock outstanding.

All of the common stock sold in this offering will be freely tradable without restrictions or further registration under the Securities Act except for any shares held by our affiliates as defined in Rule 144 under the Securities Act.

Further, as of December 31, 2020, we had 3,920,487 options outstanding that, if fully exercised, would result in the issuance of 3,920,487 shares of common stock. We intend to file a registration statement on Form S-8 under the Securities Act to register the shares of our common stock subject to outstanding stock options as of the date of this prospectus and shares that will be issuable pursuant to future awards granted under our equity incentive plan. Once we register these shares, they can be freely sold in the public market upon issuance, subject to applicable vesting requirements, compliance by affiliates with Rule 144, and other restrictions provided under the terms of the applicable plan and/or the award agreements entered into with participants.

Sales, short sales, or hedging transactions involving our equity securities, whether before or after this offering and whether or not we believe them to be prohibited, could adversely affect the price of our common stock.

Securities analysts may not publish favorable research or reports about our business or may publish no information at all, which could cause our stock price or trading volume to decline.

If a trading market for our common stock develops, the trading market will be influenced to some extent by the research and reports that industry or financial analysts publish about us and our business. We do not control these analysts. As a newly public company, we may be slow to attract research coverage and the analysts who publish information about our common stock will have had relatively little experience with us or our industry, which could affect their ability to accurately forecast our results and could make it more likely that we fail to meet their estimates. In the event we obtain securities or industry analyst coverage, if any of the analysts who cover us provide inaccurate or unfavorable research or issue an adverse opinion regarding our stock price, our stock price could decline. If one or more of these analysts cease coverage of us or fail to publish reports covering us regularly, we could lose visibility in the market, which in turn could cause our stock price or trading volume to decline.

We are an "emerging growth company" and a "smaller reporting company" and the reduced disclosure requirements applicable to "emerging growth companies" and "smaller reporting companies" may make our common stock less attractive to investors.

We are an "emerging growth company," as defined in the JOBS Act, and we may take advantage of certain exemptions and relief from various reporting requirements that are applicable to other public companies that are not "emerging growth companies." In particular, while we are an "emerging growth company," we will not be required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act; we will be exempt from any rules that could be adopted by the Public Company Accounting Oversight Board requiring mandatory audit firm rotations or a supplement to the auditor's report on financial statements; we will be subject to reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements; and we will not be required to hold nonbinding advisory votes on executive compensation or stockholder approval of any golden parachute payments not previously approved.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to avail ourselves of this extended transition period and, as a result, we will not be required to adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies.

We may remain an "emerging growth company" until the fiscal year-end following the fifth anniversary of the completion of this initial public offering, though we may cease to be an "emerging growth company" earlier under certain circumstances, including if (i) we have more than $1.07 billion in annual revenue in any fiscal year, (ii) the date on which we are deemed to be a large accelerated filer under the rules of the SEC or (iii) we issue more than $1.0 billion of non-convertible debt over a three-year period.

The exact implications of the JOBS Act are subject to interpretations and guidance by the SEC and other regulatory agencies, and we cannot assure you that we will be able to take advantage of all of the benefits of the JOBS Act. In addition, investors may find our common stock less attractive to the extent we rely on the exemptions and relief granted by the JOBS Act. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may decline or become more volatile.

We are also a "smaller reporting company," meaning that the market value of our stock held by non-affiliates plus the proposed aggregate amount of gross proceeds to us as a result of this offering is less than $700 million and our annual revenue is less than $100 million during the most recently completed fiscal year. We may continue to be a smaller reporting company after this offering if either (i) the market value of our stock held by non-affiliates is less than $250 million or (ii) our annual revenue is less than $100 million during the most recently completed fiscal year and the market value of our stock held by non-affiliates is less than $700 million. If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. Specifically, as a smaller reporting company we may choose to present only the two most recent fiscal years of audited financial statements in our Annual Report on Form 10-K and, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

If our estimates or judgments relating to our critical accounting policies are based on assumptions that change or prove to be incorrect, our operating results could fall below our publicly announced guidance or the expectations of securities analysts and investors, resulting in a decline in the market price of our common stock.

The preparation of financial statements in conformity with generally accepted accounting principles, or GAAP, requires management to make estimates and assumptions that affect the amounts reported in our consolidated financial statements and accompanying notes. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets, liabilities, equity, revenue and expenses that are not readily apparent from other sources. If our assumptions change or if actual circumstances differ from our assumptions, our operating results may be adversely affected and could fall below our publicly announced guidance or the expectations of securities analysts and investors, resulting in a decline in the market price of our common stock.

If you purchase our common stock in this offering, you will incur immediate and substantial dilution in the book value of your shares.

Investors purchasing common stock in this offering will pay a price per share that substantially exceeds the pro forma as adjusted net tangible book value per share. As a result, investors purchasing common stock in this offering will incur immediate dilution of $17.28 per share, the difference between the initial public offering price of $20.00 and our pro forma as adjusted net tangible book value per share as of December 31, 2020 after giving effect to this offering. For more information on the dilution you may suffer as a result of investing in this offering, see the section of this prospectus entitled "Dilution." This dilution is due to the substantially lower price paid by our investors who purchased shares prior to this offering as compared to the

price offered to the public in this offering and the exercise prices of stock options granted to our employees and our outstanding warrant. The exercise of any of these options or warrant would result in additional dilution.

Future sales and issuances of our common stock or rights to purchase our common stock, including pursuant to our equity incentive plans, or other equity securities or securities convertible into our common stock, could result in additional dilution of the percentage ownership of our stockholders and could cause the stock price of our common stock to decline.

We may issue additional securities following the closing of this offering. In the future, we may sell common stock, other series of common stock, convertible securities, or other equity securities, including preferred securities, in one or more transactions at prices and in a manner we determine from time to time. We also expect to issue common stock to employees, consultants, and directors pursuant to our equity incentive plans. If we sell common stock, other series of common stock, convertible securities, or other equity securities in subsequent transactions, or common stock is issued pursuant to equity incentive plans, investors may be materially diluted. New investors in subsequent transactions could gain rights, preferences, and privileges senior to those of holders of our common stock.

We do not intend to pay dividends for the foreseeable future. Consequently, any gains from an investment in our common stock will likely depend on whether the price of our common stock increases.

We have not and do not intend to pay any dividends on our common stock in the foreseeable future. We anticipate that we will retain all of our future earnings for use in the operation and growth of our business and for general corporate purposes. Any determination to pay dividends in the future will be at the discretion of our board of directors. Accordingly, investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investments. Furthermore, our Credit Agreements contain negative covenants that limit our ability to pay dividends. For more information, see the section titled “Management’s Discussion and Analysis of Financial Condition and Results of Operations — Liquidity and Capital Resources.”

A significant portion of our total outstanding shares are restricted from immediate resale but may be sold into the market in the near future. This 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 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 their shares, could result in a decrease in the market price of our common stock. Immediately after this offering, we will have 35,689,344 outstanding shares of common stock based on the number of shares outstanding as of December 31, 2020. This includes the shares that we are selling in this offering, which may be resold in the public market immediately without restriction, unless purchased by our affiliates. Of the remaining shares, shares are currently restricted as a result of securities laws or 180-day lock-up agreements but will be able to be sold after the offering as described in the section of this prospectus entitled “Shares Eligible for Future Sale.” Moreover, after this offering, holders of an aggregate of up to 26,545,579 shares of our common stock issuable upon the conversion of the shares of our convertible preferred stock, will have rights, subject to some conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders as described in the section of this prospectus entitled “Description of Capital Stock — Registration Rights.” We also intend to register all shares of common stock that we may issue under our equity compensation plans. Once we register these shares, they can be freely sold in the public market, subject to volume limitations applicable to affiliates and the lock-up agreements described in the section of this prospectus entitled “Underwriting.”

Our directors, officers and principal stockholders have significant voting power and may take actions that may not be in the best interests of our other stockholders.

After this offering, our officers, directors and principal stockholders each holding more than 5% of our common stock will collectively control approximately 58.6% of our outstanding common stock. As a result,

these stockholders, if acting together, will continue to have significant influence over the outcome of corporate actions requiring stockholder approval, including the election of directors, amendment of our organizational documents, any merger, consolidation or sale of all or substantially all of our assets and any other significant corporate transaction. The interests of these stockholders may not be the same as or may even conflict with your interests. For example, these stockholders could delay or prevent a change of control of our company, even if such a change of control would benefit our other stockholders, which could deprive our stockholders of an opportunity to receive a premium for their common stock as part of a sale of our company or our assets and might affect the prevailing market price of our common stock. The significant concentration of stock ownership may adversely affect the trading price of our common stock due to investors' perception that conflicts of interest may exist or arise.

We may allocate the net proceeds from this offering in ways that you and other stockholders may not approve.

Our management will have broad discretion in the application of the net proceeds from this offering, including for any of the purposes described in the section titled "Use of Proceeds." Because of the number and variability of factors that will determine our use of the net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. Our management might not apply our net proceeds in ways that ultimately increase the value of your investment, and the failure by our management to apply these funds effectively could harm our business. Pending their use, we may invest the net proceeds from this offering in short- and intermediate-term, interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government. These investments may not yield a favorable return to our stockholders. If we do not invest or apply the net proceeds from this offering in ways that enhance stockholder value, we may fail to achieve expected results, which could cause our stock price to decline.

We will incur increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives and corporate governance practices.

As a public company, and particularly after we are no longer an emerging growth company or smaller reporting company, we will incur significant legal, accounting and other expenses that we did not incur as a private company. The Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, Nasdaq listing requirements and other applicable securities rules and regulations impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. Our management and other personnel will need to devote a substantial amount of time to these compliance initiatives. Moreover, we expect these rules and regulations to substantially increase our legal and financial compliance costs and to make some activities more time consuming and costly. For example, we expect that these rules and regulations may make it more difficult and more expensive for us to obtain director and officer liability insurance and we may be required to incur substantial costs to maintain sufficient coverage. We cannot predict or estimate the amount or timing of additional costs we may incur to respond to these requirements. The impact of these requirements could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, our board committees or as executive officers. Moreover, these rules and regulations are often subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

If we experience material weaknesses in the future or otherwise fail to implement and maintain an effective system of internal controls in the future, we may not be able to accurately report our financial condition or results of operations which may adversely affect investor confidence in us and, as a result, the value of our common stock.

As a result of becoming a public company, we will be required, under Section 404 of the Sarbanes-Oxley Act, to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting beginning with our Annual Report on Form 10-K for the year ended December 31, 2022. This assessment will need to include disclosure of any material weaknesses identified by our management in our internal control over financial reporting. 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 a company's annual and interim financial statements will not be detected or prevented on a timely basis.

The rules governing the standards that must be met for management to assess our internal control over financial reporting are complex and require significant documentation, testing and possible remediation. To comply with the requirements of being a reporting company under the Exchange Act, including performing the evaluation needed to comply with Section 404, we will need to implement additional financial and management controls, reporting systems and procedures and hire additional accounting and finance staff. We may not be able to complete our evaluation, testing and any required remediation in a timely fashion. During the evaluation and testing process, if we identify one or more material weaknesses in our internal control over financial reporting, we will be unable to assert that our internal controls are effective. The effectiveness of our controls and procedures may be limited by a variety of factors, including:

- faulty human judgment and simple errors, omissions or mistakes;
- fraudulent action of an individual or collusion of two or more people;
- inappropriate management override of procedures; and
- the possibility that any enhancements to controls and procedures may still not be adequate to assure timely and accurate financial control.

We cannot assure you that there will not be material weaknesses in our internal control over financial reporting in the future. Any failure to implement and maintain internal control over financial reporting could severely inhibit our ability to accurately report our financial condition, results of operations or cash flows. If we are unable to conclude that our internal control over financial reporting is effective, or if our independent registered public accounting firm determines we have a material weakness in our internal control over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports, the market price of our common stock could decline, and we could be subject to sanctions or investigations by Nasdaq, the SEC or other regulatory authorities. Failure to remedy any material weakness in our internal control over financial reporting, or to implement or maintain other effective control systems required of public companies, could also restrict our future access to the capital markets.

When we cease to be an "emerging growth company" under the JOBS Act, our auditors will be required to express an opinion on the effectiveness of our internal controls, unless we are then eligible for any other exemption from such requirement. If we are unable to confirm that our internal control over financial reporting is effective, or if our independent registered public accounting firm is unable to express an opinion on the effectiveness of our internal controls, we could lose investor confidence in the accuracy and completeness of our financial reports, which could cause the price of our common stock to decline.

The failure to successfully implement and maintain accounting systems could materially adversely impact our business, results of operations, and financial condition.

If our revenue and other accounting or tax systems do not operate as intended or do not scale with anticipated growth in our business, the effectiveness of our internal control over financial reporting could be adversely affected. Any failure to develop, implement, or maintain effective internal controls related to our revenue and other accounting or tax systems and associated reporting could materially adversely affect our business, results of operations, and financial condition or cause us to fail to meet our reporting obligations. In addition, if we experience interruptions in service or operational difficulties with our revenue and other accounting or tax systems, our business, results of operations, and financial condition could be materially adversely affected.

Our results of operations and financial condition could be materially adversely affected by changes in accounting principles.

The accounting for our business is subject to change based on the evolution of our business model, interpretations of relevant accounting principles, enforcement of existing or new regulations, and changes in policies, rules, regulations, and interpretations, of accounting and financial reporting requirements of the SEC or other regulatory agencies. Adoption of a change in accounting principles or interpretations could

have a significant effect on our reported results of operations and could affect the reporting of transactions completed before the adoption of such change. It is difficult to predict the impact of future changes to accounting principles and accounting policies over financial reporting, any of which could adversely affect our results of operations and financial condition and could require significant investment in systems and personnel.

Provisions in our corporate charter documents and under Delaware law could make an acquisition of us more difficult and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our amended and restated certificate of incorporation and our amended and restated bylaws that will become effective upon the closing of this offering may discourage, delay or prevent a merger, acquisition or other change in control of us that stockholders may consider favorable, including transactions in which stockholders might otherwise receive a premium for their shares. These provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock, thereby depressing the market price of our common stock. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors. Because our board of directors is responsible for appointing the members of our management team, these provisions could in turn affect any attempt by our stockholders to replace current members of our management team. Among others, these provisions include that:

- our board of directors has the right to expand the size of our board of directors and to elect directors to fill a vacancy created by the expansion of the board of directors or the resignation, death or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;
- our board of directors is divided into three classes, Class I, Class II and Class III, with each class serving staggered three-year terms, which may delay the ability of stockholders to change the membership of a majority of our board of directors;
- our stockholders may not act by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;
- a special meeting of stockholders may be called only by the chair of the board of directors, the chief executive officer, or a majority of the board of directors, which may delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors;
- our amended and restated certificate of incorporation prohibits cumulative voting in the election of directors, which limits the ability of minority stockholders to elect director candidates;
- our board of directors may alter our bylaws without obtaining stockholder approval;
- the required approval of the holders of at least two-thirds of the voting power of all of the then outstanding shares of voting stock to adopt, amend or repeal our bylaws or repeal the provisions of our amended and restated certificate of incorporation regarding the election and removal of directors;
- stockholders must provide advance notice and additional disclosures in order to nominate individuals for election to the board of directors or to propose matters that can be acted upon at a stockholders' meeting, which may discourage or deter a potential acquiror from conducting a solicitation of proxies to elect the acquiror's own slate of directors or otherwise attempting to obtain control of our company; and
- our board of directors is authorized to issue shares of preferred stock and to determine the terms of those shares, including preferences and voting rights, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquiror.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which prohibits a person who owns in excess of 15% of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner.

Claims for indemnification by our directors and officers may reduce our available funds to satisfy successful third-party claims against us and may reduce the amount of money available to us.

Our amended and restated certificate of incorporation and amended and restated bylaws, which will become effective immediately prior to the completion of this offering, provide that we will indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law.

In addition, as permitted by Section 145 of the Delaware General Corporation Law, our amended and restated bylaws to be effective immediately prior to the completion of this offering and our indemnification agreements that we have entered or intend to enter into with our directors and officers provide that:

- we will indemnify our directors and officers to the fullest extent permitted by Delaware law. Delaware law provides that a corporation may indemnify such person if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the registrant and, with respect to any criminal proceeding, had no reasonable cause to believe such person's conduct was unlawful;
- we may, in our discretion, indemnify employees and agents in those circumstances where indemnification is permitted by applicable law;
- we are required to advance expenses, as incurred, to our directors and officers in connection with defending a proceeding, except that such directors or officers will undertake to repay such advances if it is ultimately determined that such person is not entitled to indemnification;
- the rights conferred in our amended and restated bylaws are not exclusive, and we are authorized to enter into indemnification agreements with our directors, officers, employees and agents and to obtain insurance to indemnify such persons; and
- we may not retroactively amend our amended and restated bylaw provisions to reduce our indemnification obligations to directors, officers, employees, and agents.

While we have procured directors' and officers' liability insurance policies, such insurance policies may not be available to us in the future at a reasonable rate, may not cover all potential claims for indemnification, and may not be adequate to indemnify us for all liability that may be imposed.

Our amended and restated certificate of incorporation will provide that the Court of Chancery of the State of Delaware will be the exclusive forum for certain disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our amended and restated certificate of incorporation that will become effective upon the closing of this offering specifies that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for most legal actions involving actions brought against us by stockholders; provided that, if and only if the Court of Chancery of the State of Delaware dismisses any such action for lack of subject matter jurisdiction, such action may be brought in another state or federal court sitting in the State of Delaware. Our amended and restated certificate of incorporation will also provide that the federal district courts of the United States of America will be the exclusive forum for the resolution of any complaint asserting a cause of action against us or any of our directors, officers, employees or agents and arising under the Securities Act. We believe these provisions may benefit us by providing increased consistency in the application of Delaware law and federal securities laws by chancellors and judges, as applicable, particularly experienced in resolving corporate disputes, efficient administration of cases on a more expedited schedule relative to other forums and protection against the burdens of multi-forum litigation. However, these provisions may have the effect of discouraging lawsuits against our directors and officers. The choice of forum provision requiring that the Court of Chancery of the State of Delaware be the exclusive forum for certain actions would not apply to suits brought to enforce any liability or duty created by the Exchange Act.

There is uncertainty as to whether a court would enforce such provisions, and the enforceability of similar choice of forum provisions in other companies' charter documents has been challenged in legal proceedings. While the Delaware courts have determined that such choice of forum provisions are facially

valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions, and there can be no assurance that such provisions will be enforced by a court in those other jurisdictions. If a court were to find these types of provisions to be inapplicable or unenforceable, and if a court were to find the exclusive forum provision in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving the dispute in other jurisdictions, which could materially adversely affect our business.

Because we do not anticipate paying any cash dividends on our capital stock in the foreseeable future, capital appreciation, if any, will be your sole source of gain.

We have never declared or paid cash dividends on our capital stock. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. Any future determination related to dividend policy will be made at the discretion of our board of directors, subject to applicable laws and the restrictions set forth in any of our contractual agreements, and will depend upon, among other factors, our results of operations, financial condition, contractual restrictions and capital requirements. In addition, any future debt or preferred securities or future debt agreements we may enter may preclude us from paying dividends. As a result, capital appreciation, if any, of our common stock will be your sole source of gain for the foreseeable future.

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

Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, or the Code, if a corporation undergoes an "ownership change," generally defined as a cumulative change of more than 50 percentage points (by value) in its equity ownership by certain stockholders over a three-year period, the corporation's ability to use its pre-change NOL carryforwards and other pre-change tax attributes (such as research tax credits) to offset its post-change income or taxes may be limited. We may have experienced at least one ownership change in the past, and we may experience ownership changes in the future as a result of shifts in our stock ownership (some of which shifts are outside our control), including in connection with this offering. As a result, if we earn net taxable income, our ability to use our pre-change NOL carryforwards to offset such taxable income will be subject to limitations. Similar provisions of state tax law may also apply to limit our use of accumulated state tax attributes. As a result, even if we attain profitability, we may be unable to use a material portion of our NOL carryforwards and other tax attributes, which could adversely affect our future cash flows.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements, which involve substantial risks and uncertainties. All statements other than statements of historical facts contained in this prospectus, including statements regarding our future results of operations or financial condition, business strategy and plans, and objectives of management for future operations are forward-looking statements. In some cases, you can identify forward-looking statements because they contain words such as “may,” “will,” “should,” “expects,” “plans,” “anticipates,” “could,” “intends,” “target,” “projects,” “contemplates,” “believes,” “estimates,” “predicts,” “would,” “potential” or “continue” or the negative of these words or other similar terms or expressions that concern our expectations, strategy, plans or intentions. These forward-looking statements include, among others, statements relating to our future financial performance, our business prospects and strategy, our market opportunity and the potential growth of that market, our anticipated financial position, our liquidity and capital needs and other similar matters. These forward-looking statements are based on management’s current expectations and assumptions about future events, which are inherently subject to uncertainties, risks and changes in circumstances that are difficult to predict.

Our actual results may differ materially from those expressed in, or implied by, the forward-looking statements included in this prospectus as a result of various factors, including, among others:

- our company as an early stage company with a history of losses, which expects to incur significant expenses and continuing losses for the foreseeable future;
- our ability to manage and grow our business by expanding our sales to existing customers or introducing our products and technologies to new customers;
- our dependency upon the biopharmaceutical industry’s willingness to adopt our spatial biology platforms;
- the impact of health epidemics, including the COVID-19 pandemic, on our business and the actions we may take in response thereto;
- developments and projections relating to our competitors and industry;
- increases in costs, disruption of supply or shortage of raw materials, which could harm our business;
- our expectations about how market trends will affect our TAM;
- our and our licensors’ ability to obtain, establish, maintain, protect and enforce intellectual property and proprietary protection for our products and technologies and to avoid claims of infringement, misappropriation or other violation of third-party intellectual property and proprietary rights;
- our ability to hire and retain key management, scientific and engineering personnel and to manage our future growth effectively;
- our ability to obtain additional financing in this or future offerings;
- the volatility of the trading price of our common stock;
- evolving regulations and the potential for unfavorable changes to, or failure by us to comply with, regulations, which could substantially harm our business and operating results;
- our expectations regarding the period during which we qualify as an emerging growth company under the JOBS Act; and
- our expectations regarding use of proceeds from this offering.

We have based the forward-looking statements contained in this prospectus primarily on our current expectations and projections about future events and trends that we believe may affect our business, financial condition, results of operations, prospects, business strategy and financial needs. The outcome of the events described in these forward-looking statements is subject to risks, uncertainties, assumptions and other factors described in the section captioned “Risk Factors” and elsewhere in this prospectus. These risks are not exhaustive. Other sections of this prospectus include additional factors that could adversely impact our business and financial performance. Furthermore, new risks and uncertainties emerge from time to time

and it is not possible for us to predict all risks and uncertainties that could have an impact on the forward-looking statements contained in this prospectus. We cannot assure you that the results, events and circumstances reflected in the forward-looking statements will be achieved or occur, and actual results, events or circumstances could differ materially from those described in the forward-looking statements. You should, however, review the factors and risks and other information we describe in the reports we will file from time to time with the SEC after the date of this prospectus. See “Where You Can Find More Information.”

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

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

The forward-looking statements made in this prospectus relate only to events as of the date on which such statements are made. We undertake no obligation to update any forward-looking statements after the date of this prospectus or to conform such statements to actual results or revised expectations, except as required by law.

USE OF PROCEEDS

We estimate that the net proceeds to us from the sale of shares of our common stock in this offering will be approximately $119.9 million, based upon the initial public offering price of $20.00 per share and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. If the underwriters' option to purchase additional shares is exercised in full, we estimate that the net proceeds to be received by us will be approximately $138.3 million, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

The principal purposes of this offering are to increase our capitalization and financial flexibility, create a public market for our common stock and thereby enable access to the public equity markets for us and our stockholders. We currently expect to use the net proceeds from this offering, together with our existing cash, for working capital and general corporate purposes, including: (1) approximately $25.0 million to expand our commercial operations to grow and support the installed base of our instruments among life sciences research customers in the United States and internationally; and (2) approximately $20.0 million to fund our research and development efforts to expand the applications of our current instruments and to create enhanced products with our platform of technologies. We may also use a portion of the net proceeds for acquisitions of, or strategic investments in, complementary businesses, products, services, or technologies. However, we do not have any agreements or commitments to enter into any material acquisitions or investments at this time. Pending the use of the proceeds from this offering as described above, we intend to invest the net proceeds from the offering that are not used as described above in investment-grade, interest-bearing instruments such as money market accounts, certificates of deposit, commercial paper and guaranteed obligations of the U.S. government.

This expected use of net proceeds from this offering represents our intentions based on our current plans and business conditions, which could change in the future as our plans and business conditions evolve. As a result, our management will have broad discretion over the uses of the net proceeds from this offering and investors will be relying on the judgement of our management regarding the application of the net proceeds from this offering.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our common stock, and we do not currently intend to pay any cash dividends on our common stock in the foreseeable future. We currently intend to retain any future earnings for use in the operation and expansion of our business, and we do not plan to declare or pay cash dividends in the foreseeable future. Any further determination to pay dividends on our capital stock will be at the discretion of our board of directors, subject to applicable laws, and will depend on our financial condition, results of operations, capital requirements, general business conditions, and other factors that our board of directors considers relevant. In addition, our ability to pay dividends is currently restricted by the terms of our Term Loan with Midcap Financial Trust. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations — Midcap Financial Trust Loan*" for more information.

CAPITALIZATION

The following table sets forth our cash and cash equivalents and our capitalization as of December 31, 2020:

- on an actual basis;
- on a pro forma basis to reflect (1) the automatic conversion of all outstanding shares of our Class B common stock as of December 31, 2020 into 2,563,765 shares of common stock immediately prior to the closing of this offering, (2) the automatic conversion of all outstanding shares of our convertible preferred stock as of December 31, 2020 into 26,545,579 shares of common stock immediately prior to the closing of this offering, (3) the reclassification of the warrant liability to additional paid in capital (as the warrant will be exercisable into common stock immediately prior to the closing of this offering and will no longer meet the requirements of liability classification), and (4) the filing of our Certificate of Incorporation immediately prior to the closing of this offering; and
- on a pro forma as adjusted basis to give effect to (1) the pro forma items described immediately above and (2) our issuance and sale of 6,580,000 shares of common stock in this offering at the initial public offering price of $20.00 per share, the midpoint of the price range set forth on the cover page of this prospectus, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

The pro forma and pro forma as adjusted information below is illustrative only, and our capitalization following the closing of this offering will be adjusted based on the actual initial public offering price and other terms of this offering determined at pricing. You should read this information in conjunction with our consolidated financial statements and the related notes included elsewhere in this prospectus, the section titled “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and other financial information contained in this prospectus.

	As of December 31, 2020		
	Actual	Pro Forma (unaudited)	Pro Forma as Adjusted (unaudited)
	(in thousands, except share and per share data)		
Cash and cash equivalents	$17,006	$17,006	$136,894
Current portion of long-term debt	$ 1,032	$ 1,032	$ 1,032
Long-term debt, net of current portion and debt discount	$33,488	$33,488	$ 33,488
Warrant Liability	490	—	—
Redeemable convertible preferred stock,	—	—	
Series B Redeemable Convertible Preferred Stock, $0.00001 par value; 13,715,330 shares authorized, issued and outstanding, actual; no shares authorized, issued and outstanding, pro forma and pro forma as adjusted	11,500	—	—
Series C Redeemable Convertible Preferred Stock, $0.00001 par value; 26,732,361 shares authorized, issued and outstanding, actual; no shares authorized, issued and outstanding, pro forma and pro forma as adjusted	30,107	—	—
Series D Redeemable Convertible Preferred Stock, $0.00001 par value; 16,758,996 shares authorized; 16,390,217 shares issued and outstanding, actual; no shares authorized, issued and outstanding, pro forma and pro forma as adjusted	27,500	—	—

	As of December 31, 2020		
	Actual	Pro Forma (unaudited)	Pro Forma as Adjusted (unaudited)
	(in thousands, except share and per share data)		
Stockholders' (deficit) equity:			
Series A Convertible Preferred Stock, $0.00001 par value; 5,013,333 shares authorized, issued and outstanding, actual; no shares authorized, issued and outstanding, pro forma and pro forma as adjusted	1,253	—	—
Class A Common Stock, $0.00001 par value; 62,220,020 shares authorized; 0 shares issued and outstanding, actual; 500,000,000 shares authorized, 29,109,344 shares issued and outstanding, pro forma; 500,000,000 shares authorized, 35,689,344 shares issued and outstanding, pro forma as adjusted	—	2	2
Class B Common Stock, $0.00001 par value; 16,822,202 shares authorized; 2,563,765 shares issued and outstanding, actual; no shares authorized, issued and outstanding, pro forma and pro forma as adjusted	1	—	—
Preferred Stock, $0.00001 par value; no shares authorized, issued and outstanding, actual; 10,000,000 shares authorized and no shares issued and outstanding, pro forma and pro forma as adjusted	—		
Additional paid-in capital	—	70,849	190,737
Accumulated deficit	(52,280)	(52,280)	(52,280)
Total stockholders' (deficit) equity	(51,026)	18,571	138,459
Total capitalization	$ 53,091	$ 53,091	$172,979

If the underwriters' option to purchase additional shares is exercised in full, pro forma as adjusted cash and cash equivalents, additional paid-in capital, total stockholders' (deficit) equity and total capitalization and shares of common stock outstanding would be $155.3 million, $209.1 million, $156.8 million, $190.3 million and 36,676,344 shares, respectively.

The outstanding share information in the table above is based on 29,109,344 shares of our common stock outstanding as of December 31, 2020, and excludes:

- 3,920,487 shares of common stock issuable upon the exercise of outstanding stock options, having a weighted average exercise price of $0.51 per share;
- 158,274 shares of our common stock issuable upon the exercise of certain outstanding convertible preferred stock warrants, having an exercise price of $3.56 per share, and are expected remain unexercised after the completion of this offering;
- 1,727,953 shares of common stock that will become available for issuance under the 2021 Plan, which will become effective in connection with this offering; and
- 172,795 shares of common stock that will become available for issuance under the ESPP, which will become effective in connection with this offering.

Our 2021 Plan and ESPP provide for annual automatic increases in the number of shares reserved thereunder. See the section titled "Executive Compensation — Equity Incentive Plans" for additional information.

DILUTION

If you invest in our common stock in this offering, your interest will be immediately diluted to the extent of the difference between the initial public offering price per share of our common stock in this offering and the pro forma as adjusted net tangible book value (deficit) per share of our common stock after this offering. As of December 31, 2020, we had a historical net tangible book value (deficit) of $(93.5) million, or $(36.48) per share of common stock. Our historical net tangible book value per share represents total tangible assets less total liabilities, convertible preferred stock, redeemable preferred stock, divided by the number of shares of our common stock outstanding as of December 31, 2020. As of December 31, 2020, we had a pro forma net tangible book value (deficit) of $(23.2) million, or $(0.80) per share. Pro forma net tangible book value per share represents the amount of our tangible assets less total liabilities, all divided by the number of shares of our common stock outstanding as of December 31, 2020, after giving effect to (1) the automatic conversion of all outstanding shares of our Class B common stock as of December 31, 2020 into 2,563,765 shares of common stock immediately prior to the closing of this offering, (2) the automatic conversion of all outstanding shares of our convertible preferred stock as of December 31, 2020 into 26,545,579 shares of common stock immediately prior to the closing of this offering and (3) the filing of our Certificate of Incorporation immediately prior to the closing of this offering.

After giving further effect to the sale of 6,580,000 shares of common stock in this offering at the initial public offering price of $20.00 per share, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of December 31, 2020 would have been approximately $97.0 million, or approximately $2.72 per share. This represents an immediate increase in pro forma net tangible book value of $3.52 per share to existing stockholders and an immediate dilution in pro forma net tangible book value of $17.28 per share to new investors purchasing shares of common stock in this offering. Dilution per share to new investors is determined by subtracting pro forma as adjusted net tangible book value per share after this offering from the initial public offering price per share paid by new investors. The following table illustrates this per share dilution:

	Without Over-allotment	With Over-allotment
The initial public offering price per share	$ 20.00	$ 20.00
Historical net tangible book value per share as of December 31, 2020	$(36.48)	$(36.48)
Pro forma net tangible book value per share as of December 31, 2020	$ (0.80)	$ (0.80)
Increase in pro forma net tangible book value per share attributable to this offering	$ 3.52	$ 3.95
Pro forma as adjusted net tangible book value per share after this offering	$ 2.72	$ 3.15
Dilution per share to new investors in this offering	$ 17.28	$ 16.85

The following table summarizes, on a pro forma as adjusted basis as of December 31, 2020, the differences between the number of shares of common stock purchased from us, the total consideration paid and the average price per share paid by existing stockholders and to be paid by the new investors purchasing shares of common stock in this offering at the initial public offering price of common stock of $20.00 per share, before deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

	Shares purchased		Total consideration		Average price per share
	Number	Percent	Amount	Percent	
Existing investors	29,109,344	82%	$ 60,880,491	32%	$ 2.09
New investors in this offering	6,580,000	18	131,600,000	68%	$20.00
Total	35,689,344	100%	$192,480,491	100%	$ 5.39

The table above assumes no exercise of the underwriters' option to purchase additional shares in this offering. If the underwriters' option to purchase additional shares is exercised in full, the number of shares

of our common stock held by existing stockholders would be reduced to 79% of the total number of shares of our common stock outstanding after this offering, and the number of shares of common stock held by new investors purchasing common stock in this offering would be increased to 21% of the total number of shares of our common stock outstanding after this offering.

The number of shares of our common stock that will be outstanding after this offering is based on 29,109,344 shares of our common stock (including 26,545,579 shares of preferred stock on an as-converted basis) outstanding as of December 31, 2020, and excludes:

- 3,920,487 shares of common stock issuable upon the exercise of outstanding stock options, having a weighted average exercise price of $0.51 per share;
- 158,274 shares of our common stock issuable upon the exercise of certain outstanding convertible preferred stock warrants, having an exercise price of $3.56 per share, and are expected remain unexercised after the completion of this offering;
- 1,727,953 shares of common stock reserved for future issuance under the 2021 Plan, which will become effective in connection with this offering; and
- 172,795 shares of common stock reserved for future issuance under the ESPP, which will become effective in connection with this offering.

Our 2021 Plan and ESPP provide for annual automatic increases in the number of shares reserved thereunder. See the section titled “Executive Compensation — Equity Incentive Plans” for additional information.

To the extent any of the outstanding options or warrants are exercised or new options or other securities are issued under our equity incentive plans, you will experience further dilution as a new investor in this offering. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. Furthermore, we may choose to issue common stock as part or all of the consideration in acquisitions as part of our planned growth strategy. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

SELECTED CONSOLIDATED FINANCIAL DATA

The following tables set forth our selected consolidated financial data for the periods and as of the dates indicated. The consolidated financial information as of and for the years ended December 31, 2020 and 2019, are derived from our audited consolidated financial statements and related notes included elsewhere in this prospectus. Our historical results are not necessarily indicative of our future results for any period. You should read this data together with our audited consolidated financial statements and related notes included elsewhere in this prospectus and the information under the caption "Management's discussion and analysis of financial condition and results of operations." The selected consolidated financial data included in this section is not intended to replace the audited consolidated financial statements and related notes included elsewhere in this prospectus.

	Year ended December 31,	
($ in thousands, except share and per share data)	**2020**	**2019**
Consolidated statements of operations		
Revenue:		
Product revenue	$ 33,438	$ 36,344
Service and other revenue	9,005	5,892
Total revenue	42,443	42,236
Cost of goods sold:		
Cost of product revenue	12,584	15,447
Cost of service and other revenue	3,951	2,126
Total cost of goods sold	16,535	17,573
Gross profit	25,908	24,663
Operating expenses:		
Selling, general and administrative	23,982	26,351
Research and development	9,603	8,761
Change in fair value of contingent consideration	519	(1,201)
Depreciation and amortization	3,815	3,055
Total operating expenses	37,919	36,966
Loss from operations	(12,011)	(12,303)
Other income (expense):		
Interest expense, net	(2,723)	(1,881)
Change in fair value of warrant liability	(298)	—
Loss on extinguishment of debt	(1,671)	—
Other (expense) income, net	39	(373)
Loss before provision for income taxes	(16,664)	(14,557)
Provision for income taxes	(42)	(194)
Net loss	$ (16,706)	$ (14,751)
Net loss per share attributable to common stockholders, basic and diluted[(1)]	$ (9.18)	$ (8.04)
Weighted-average shares outstanding, basic and diluted[(1)]	2,370,574	2,276,048
Pro forma net loss per share attributable to common stockholders, basic and diluted[(1)]	$ (0.75)	—
Pro forma weighted-average common shares outstanding, basic and diluted[(1)]	28,916,153	—

(1) See Note 2 and Note 14 to our consolidated financial statements included elsewhere in this prospectus for further details on the calculation of net loss per share attributable to common stockholders, basic and diluted, and the weighted-average shares used to compute net loss per share attributable to common stockholders, basic and diluted, and unaudited pro forma information.

	December 31,	
(in thousands)	**2020**	**2019**
Consolidated balance sheet data:		
Cash, cash equivalents, certificates of deposit, and restricted cash – long term	$ 17,508	$ 22,160
Working capital[(1)]	11,534	19,719
Total assets	77,660	89,413
Deferred revenue	4,852	5,280
Current portion of long-term debt	1,032	—
Long-term debt, net of current portion and debt discount	33,488	24,466
Total redeemable convertible preferred stock	69,107	64,347
Convertible preferred stock	1,253	1,253
Accumulated deficit	(52,280)	(31,413)
Total stockholders' deficit	(51,026)	(30,159)

(1) Working capital is calculated as current assets less current liabilities. See our consolidated financial statements and related notes included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

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

You should read the following discussion and analysis of financial condition and results of operations together with the section titled "Selected consolidated financial data" and our consolidated financial statements and related notes included elsewhere in this prospectus. This discussion and other parts of this prospectus contain forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those discussed in or implied by these forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those discussed in the section titled "Risk Factors." Please also see the section titled "Special note regarding forward looking statements."

Overview

We are an innovative life sciences technology company delivering spatial biology solutions focused on transforming discovery and clinical research. Our mission is to deliver a revolutionary new class of spatially derived biomarkers that empower life sciences researchers to better understand disease and clinicians to improve patient outcomes. Spatial biology refers to a rapidly evolving technology that enables academic and biopharma scientists to detect and map the distribution of cell types and biomarkers across whole tissue samples at single cell resolution, enabling advancements in their understanding of disease progression and patient response to therapy. Through our CODEX and Phenoptics platforms, reagents, software and services, we offer end-to-end solutions to perform tissue analysis and spatial phenotyping across the full continuum, from discovery through translational and clinical research.

Our spatial biology solutions measure cells and proteins by providing biomarker data in its spatial context while preserving tissue integrity. Biomarkers are objective measures that capture what is happening in a cell or tissue at a given moment. Current genomic and proteomic methods, such as next-generation sequencing (NGS), single-cell analysis, flow cytometry and mass spectrometry, are providing meaningful data but require the destruction of the tissue sample for analysis. While valuable and broadly adopted, these approaches allow scientists to analyze the biomarkers and cells that comprise the tissue but do not provide the fundamental information about tissue structure, cellular interactions and the localized measurements of key biomarkers. Furthermore, current non-destructive tissue analysis and histological methods provide some limited spatial information, but only measure a minimal number of biomarkers at a time and require expert pathologist interpretation. Our platforms address these limitations by providing end-to-end solutions that enable researchers to quantitatively interrogate a large number of biomarkers and cell types across a tissue section at single cell resolution. The result is a detailed and computable map of the tissue sample that thoroughly captures the underlying tissue dynamics and interactions between key cell types and biomarkers, a process now referred to as spatial phenotyping. We believe that we are the only business with the breadth of platform capabilities that enable researchers to do a deep exploratory and discovery study, and then further advance and scale their study through translational and clinical phases, thereby helping to provide a broad scope of understanding of human biology, disease progression and response to therapy.

We offer two distinct platforms for spatial phenotyping, each designed to serve the unique needs of our customers in the discovery, translational and clinical markets. The first, CODEX, is an ultra-high parameter and cost-effective platform ideally suited for discovery research with the ability to identify more than 40 biomarkers in a tissue sample. The second, Phenoptics, is a high-throughput platform with the automation and robustness needed for translational and clinical applications. Both offer seamless and integrated workflow solutions for our customers, including important benefits such as flexible sample types, automated sample processing, scalability, comprehensive data analysis and software solutions and dedicated field and applications support. With these platforms, our customers are performing spatial phenotyping to further advance their understanding of diseases such as cancer, neurological and autoimmune disorders, and many other therapeutic areas.

For the years ended December 31, 2020 and 2019, revenue from North America accounted for approximately 47% and 53% of our revenue, respectively.

As of December 31, 2020, we employed a commercial team of 67 employees, including many with significant industry and technical experience. We follow a direct sales model in North America and EMEA, while selling through third party distributors and dealers in APAC.

We focus a substantial portion of our resources on research and development, as well as on business development and sales and marketing. Our research and development efforts are geared towards developing new instruments and assay capabilities, as well as new reagent kits, to meet both our customers' needs and to address new markets. We incurred research and development expenses of $9.6 million and $8.8 million for the years ended December 31, 2020 and 2019, respectively. We intend to continue making significant investments in this area for the foreseeable future. We also intend to continue to make investments in building our sales team and marketing our products and services to potential customers. We incurred aggregate general, administrative, and sales and marketing expenses of $24.0 million and $26.4 million for the years ended December 31, 2020 and 2019, respectively.

We generally outsource all of our production manufacturing. Design work, prototyping and pilot manufacturing are performed in-house before outsourcing to third party contract manufacturers. Our outsourced production strategy is intended to drive cost leverage and scale, and avoid the high capital outlays and fixed costs related to constructing and operating a manufacturing facility. The contract manufacturers of our systems and reagent kits are located in the United States and Asia. Certain of our suppliers of components and materials are single source suppliers. We manufacture and assemble certain instrument components in-house.

As of the date of this prospectus, we have financed our operations primarily from the issuance and sale of convertible preferred stock and borrowings under our long-term debt agreement. We have incurred net losses in each year since our inception in 2015. Our net losses were $16.7 million and $14.8 million for the years ended December 31, 2020 and 2019, respectively. We expect to continue to incur significant expenses and operating losses for the foreseeable future. We expect our expenses will increase substantially in connection with our ongoing activities, as we:

- attract, hire and retain qualified personnel, including the expansion of our commercial capabilities and organizations;
- market and sell new and existing solutions and services;
- invest in processes and infrastructure to scale our business;
- support research and development to introduce new solutions;
- expand, protect and defend our intellectual property; and
- acquire complementary businesses or technologies to support the growth of our business.

Key factors affecting our results of operations and future performance

There are a number of factors that have impacted, and we believe will continue to impact, our business, results of operations and growth. Our ability to successfully address these factors is subject to various risks and uncertainties, including those described under the heading "*Risk Factors.*"

Expansion of our installed base

We are focused on increasing sales of our Codex and Phenoptics platforms to new and existing customers. Our financial performance has historically been driven by, and will continue to be impacted by, the volume of instrument sales. Additionally, instrument sales are a leading indicator of future recurring revenue from consumables and services. Our operating results and growth prospects will be dependent in part on our ability to increase our instrument installed base as we further penetrate existing markets and expand into, or offer new features and solutions that appeal to, new markets.

We believe our market is still evolving and relatively underpenetrated. As spatial biology is further validated through rapid acceleration of peer-reviewed publications and growing adoption by the life sciences research market, we believe we have an opportunity to significantly increase our installed base. In order to capitalize on this opportunity to drive adoption of our platforms across the entire market, we intend to expand our global sales and marketing organizations, increase the scale of our outbound marketing activities, invest in commercial channel infrastructure and deliver new, market-leading solutions to our customers. In addition, we regularly solicit feedback from our customers in order to enhance our solutions

and their applications for life sciences research, which we believe will drive increased adoption of our platforms as they better serve our customers' needs.

Drive incremental pull through

We believe that expansion of our installed base to new and existing customers will drive an increase in our recurring reagent and instrument service revenue. In addition, as our research and development team identifies and launches new applications and biomarker targets, we expect to increase incremental pull through on our existing and new instrument installed base. Recurring revenue was 33% and 29% of total revenue for the years ended December 31, 2020 and 2019, respectively. Our recurring revenue as a percentage of total product and service revenue will vary based upon new device placements in the period. As our installed base expands, we expect recurring revenue on an absolute basis to increase and become an increasingly important contributor to our revenue.

Improve revenue mix and gross margin

Our revenue is primarily derived from sales of our platforms, consumables, software, and services. Our revenue mix will fluctuate from period-to-period, particularly revenue generated from instrument sales. As our installed base grows, we expect consumables and instrument service revenue to constitute a larger percentage of total revenue.

Our margins are higher for those instruments and consumables that we sell directly to customers compared to those sold through distributors. While we do not currently intend to terminate our distributor relationships, we plan to increase our direct sales capabilities in certain geographies which we believe will improve our gross margins.

Future instrument and consumable selling prices and gross margins may fluctuate due to a variety of factors, including the introduction by others of competing products and solutions. We aim to mitigate downward pressure on our average selling prices by increasing the value proposition offered by our instruments and consumables, primarily by expanding the applications for our devices and increasing the quantity and quality of data that can be obtained using our consumables.

COVID-19 Impact

In March 2020, COVID-19 was declared a global pandemic by the World Health Organization. In the following weeks, many states and counties across the United States responded by implementing a number of measures designed to prevent its spread, including stay-at-home or shelter-in-place orders, quarantines and closure of all non-essential businesses. The impact of this pandemic has been and will likely continue to be extensive in many aspects of society, which has resulted in and will likely continue to result in significant disruptions to the global economy, as well as businesses and capital markets around the world.

Impacts in 2020 to our business as a result of COVID-19 include disruptions to our manufacturing operations and supply chain caused by facility closures, reductions in operating hours, staggered shifts and other social distancing efforts, decreased productivity and unavailability of materials or components, limitations on our employees' and customers' ability to travel, and delays in product installations, trainings or shipments to and from affected countries and within the United States. In light of the uncertain and rapidly evolving situation relating to the spread of COVID-19, we have taken precautionary measures intended to minimize the risk of the virus to our employees, our customers and the communities in which we operate, including temporarily closing our offices to visitors and limiting the number of employees in our offices to those that are deemed essential for manufacturing and research purposes, as well as virtualizing, postponing or canceling customer, employee and industry events.

Disruptions in our customers' operations have impacted and may continue to impact our business. For example, laboratory shutdowns and reduced capital spend by our customers have negatively impacted our instrument and reagent sales. We are focused on navigating the challenges presented by COVID-19, with a primary focus on preserving our liquidity and managing our cash flows by taking preemptive action to enhance our ability to meet our short-term liquidity needs. To address actual and expected reductions in revenue and cash flows, we reduced our discretionary spending.

We do not yet know the net impact that the COVID-19 pandemic may have on our business and cannot guarantee that it will not be materially negative. Although we continue to monitor the situation and may adjust our current policies as more information and public health guidance become available, the ongoing effects of the COVID-19 pandemic and/or the precautionary measures that we have adopted may create operational and other challenges, any of which could harm our business and results of operations. While we maintain an inventory of finished products and raw materials used in our products, a prolonged pandemic could lead to shortages in the raw materials necessary to manufacture our products. If we experience a prolonged disruption in our manufacturing, supply chains or commercial operations, or if demand for our products is significantly reduced as a result of the COVID-19 pandemic, we would expect to experience a material adverse impact on our business, financial condition, results of operations and prospects.

Historically, a significant portion of our field sales, customer training events and other application services have been conducted in person, and the rollout of our new products has historically been supported by our participation at industry conferences. Currently, as a result of the work and travel restrictions related to the COVID-19 pandemic, and the precautionary measures that we have adopted, substantially all of our field sales and professional services activities are being conducted remotely, which has resulted in a decrease in our travel expenditures. However, we expect our travel expenditures to increase in the future, which could negatively impact our financial condition and results of operations. As of the date of this prospectus, we do not yet know the extent of the negative impact of such restrictions and precautionary measures on our ability to attract new customers or retain and expand our relationships with existing customers over the near and long term. The length of time and full extent to which the COVID-19 pandemic may directly or indirectly impact our business, results of operations and financial condition will depend on future developments that are highly uncertain, subject to change and difficult to predict.

License Agreements

In November 2015, we entered into an exclusive (equity) agreement with Stanford, pursuant to which Stanford granted us an exclusive, worldwide, sublicensable (subject to certain requirements) license under certain patent rights to make, use, import and commercialize products for diagnostic, industrial and research and development purposes. We agreed to pay annual license maintenance fees ranging from $20 thousand to $50 thousand for the royalty-bearing license to certain patents. We also issued a total of 213,333 shares of Class B common stock pursuant to the agreement in 2015, which were recorded at fair value at the date of issuance. We are required to pay royalties on net sales of products that are covered by patent rights under the agreement at a rate of 2.25%, subject to reductions and offsets in certain circumstances, as well as a portion of any of our sublicensing income.

In September 2018, in connection with the acquisition of the Phenoptics technology from PKI, we entered into a license and royalty agreement with PKI, Cambridge Research & Instrumentation, Inc., and VisEn Medical Inc., pursuant to which such parties granted us an exclusive, nontransferable, sublicensable (subject to certain conditions) license under certain patent rights and know-how to make, use, import and commercialize Phenoptics products and services. We are required to pay royalties on net sales of products and services that are covered by patent rights under the agreement at a rate ranging from 1.0% to 7.0%.

Transition Services Agreement

In September 2018, in connection with the acquisition of the Phenoptics technology from PKI, we entered into a Transition Services Agreement under which PKI will continue to provide various services, including manufacturing and distribution, to us relating to the Phenoptics products over a period of one year in exchange for payment. Over the term of the Transition Services Agreement, we provided PKI with instrument demand forecasts for production and purchase orders specifying the quantity of items to be purchased. Upon termination of the Agreement, all raw materials, work in process, replacement parts, supplies, and finished goods in the possession of PKI and not already owned by us were purchased per the associated pricing list in the Transition Services Agreement. The agreement terminated by its terms as of December 31, 2019.

Key Business Metrics

We regularly review the number of instrument placements and cumulative instrument placement as key metrics to evaluate our business, measure our performance, identify trends affecting our business, develop

financial projections, and make strategic decisions. We believe that these metrics are representative of our current business; however, we anticipate these will change or may be substituted for additional or different metrics as our business grows.

During the years ended December 31, 2020 and 2019, our instrument placements were as follows:

	Year Ended December 31,	
	2020	2019
Instrument Placements:	118	146

Our instruments are sold globally to leading biopharma companies and top research institutions and medical centers. Our quarterly instrument placements fluctuate considerably from period-to-period due to the type and size of our customers and their procurement and budgeting cycles. We expect continued fluctuations in our quarterly period-to-period number of instrument placements.

We believe our instrument placements are important metrics to measure our business because together they are driven by our ability to secure new customers and drive adoption of our Codex and Phenoptics platforms and provide insights into anticipated recurring revenue for consumables and instrument services.

Components of results of operations

Revenue

Product Revenue

We generate product revenue from the sale of our instruments, consumables and software products. Instrument sales accounted for 71% and 73% of our product revenue for the years ended December 31, 2020 and 2019, respectively. Consumables revenue accounted for 26% and 22% of our product revenue for the years ended December 31, 2020 and 2019, respectively.

Our current instrument offerings include our Codex platform and our Phenoptics platform. Our sales process with customers is often long and involves multiple levels of approvals. As a result, the revenue for our platforms can vary significantly from period-to-period and has been, and may continue to be, concentrated in a small number of customers in any given period.

We sell our instruments directly to customers and through distributors. Each of our instrument sales drives various streams of recurring revenue comprised of consumable product sales and instrument services.

Service and Other Revenue

We primarily generate service and other revenue from instrument service, which generally consists of sales of extended service contracts, in addition to installation and training, as well as from our laboratory services operation, where we provide sample testing services to customers utilizing our in-house lab operation.

We offer our customers extended warranty and service plans for our platforms. Our extended warranty and service plans are offered for periods beyond the standard one-year warranty that all customers receive. These extended warranty and service plans generally have fixed fees and terms ranging from one to four additional years. We recognize revenue from the sale of extended warranty and service plans over the respective coverage period, which approximates the service effort provided by us.

The Company records shipping and handling billed to customers as service and other revenue and the related costs in cost of service and other revenue in the consolidated statement of operations.

During the years ended December 31, 2019 and December 31, 2020, our revenue was comprised of the following sources:

	Year ended December 31,	
($ in thousands)	2020	2019
Product and service revenue:		
Product revenue	$33,438	$36,344
Service revenue and other	9,005	5,892
Total revenue	$42,443	$42,236

We sell our products globally. We sell directly to end customers in North America and EMEA and we sell through third party distributors and dealers in the APAC region.

Cost of Goods Sold, Gross Profit and Gross Margin

Product cost of revenue primarily consists of costs for finished goods (both instruments and reagents) produced by our contract manufacturers, and associated freight, shipping and handling costs for products shipped to customers, salaries and other personnel costs, and other direct costs related to those sales recognized as product revenue in the period. Cost of goods sold for services and other primarily consists of salaries and other personnel costs, travel related to services provided, costs of servicing equipment at customer sites, and all personnel and related costs for our laboratory services operation.

We expect that our cost of goods sold will increase or decrease to the extent that our revenue increases and decreases and depending on the mix of revenue in any specific period.

Gross profit is calculated as revenue less cost of goods sold. Gross margin is gross profit expressed as a percentage of revenue. Our gross profit in future periods will depend on a variety of factors, including: market conditions that may impact our pricing, sales mix among instruments, sales mix changes among consumables, excess and obsolete inventories, costs we pay our contract manufacturers for their services, our cost structure for lab service operations relative to volume, and product warranty obligations. Our gross profit in future periods will also vary based upon our channel mix and may decrease based upon our distribution channels.

Gross profit was $25.9 million compared to $24.7 million for the years ended December 31, 2020 and 2019, respectively.

Operating expenses

Research and development. Research and development costs primarily consist of salaries, benefits, engineering/design costs, laboratory supplies, and materials expenses for employees and third parties engaged in research and product development. We expense all research and development costs in the period in which they are incurred.

We plan to continue to invest in our research and development efforts, including hiring additional employees, to enhance existing products and develop new products. As a result, we expect that our research and development expenses will continue to increase in absolute dollars in future periods. We expect these expenses to vary from period to period as a percentage of revenue.

Selling, general and administrative. Our selling, general and administrative expenses primarily consist of salaries and benefits for employees in our executive, accounting and finance, legal expenses related to intellectual property, sales and marketing, operations, and human resource functions as well as professional services fees, such as consulting, audit, tax and legal fees, general corporate costs, commercial sales functions, marketing, travel expenses, facilities, IT, and allocated overhead expenses. We expect that our sales, general and administrative expenses will continue to increase in absolute dollars after this offering, primarily due to increased headcount to support anticipated growth in the business and due to incremental costs associated with operating as a public company. Additionally, we expect an increase in absolute dollars as we expand our commercial sales, marketing and business development teams, increase our presence globally and increase marketing activities to drive awareness and adoption of our platform. We expect these expenses to vary from period to period as a percentage of revenue.

Change in fair value of contingent consideration. On September 28, 2018, the Company acquired substantially all the assets of the Quantitative Pathology Solutions (“QPS”) division of PKI. As part of the acquisition, on September 28, 2018, the Company entered into a Transition Services Agreement and a License Agreement (the “Ancillary Agreements”) with PKI. Under the terms of the License Agreement, the Company agreed to pay PKI certain royalties as a percentage of future sales of products from the QPS division, in exchange for a perpetual license of the right to produce and sell QPS products. This contingent consideration is subject to remeasurement.

Depreciation and amortization. Depreciation and amortization expenses primarily consist of depreciation of property and equipment and amortization of acquired intangibles. We expect that depreciation and amortization expenses will decrease as a percentage of revenue.

Other income (expense)

Interest expense. Interest expense consists primarily of interest related to borrowings under our debt obligations.

Change in fair value of warrant liability. In 2019, the Company issued a warrant to purchase 368,779 additional shares of Series D Preferred Stock at a purchase price of $1.53 per share. The Company uses the Black-Scholes option pricing model to value the warrant liability for the Series D Preferred Stock warrant. This liability is subject to remeasurement.

Loss on extinguishment of debt. Loss on extinguishment of debt primarily consists of fees incurred to extinguish debt plus any related unamortized debt issuance costs.

Other income (expense), net. Other income (expense), net consists primarily of franchise tax and foreign currency exchange gains and losses.

Provision for income taxes

Our provision for income taxes consists primarily of foreign taxes and state minimum taxes in the United States. As we expand the scale and scope of our international business activities, any changes in the United States and foreign taxation of such activities may increase our overall provision for income taxes in the future.

Results of operations

The results of operations presented below should be reviewed in conjunction with the consolidated financial statements and notes included elsewhere in the prospectus. The following tables set forth our results of operations for the periods presented:

	Year ended December 31,	
($ in thousands)	**2020**	**2019**
Product revenue	$ 33,438	$ 36,344
Service and other revenue	9,005	5,892
Total revenue	42,443	42,236
Cost of goods sold:		
Cost of product revenue	$ 12,584	$ 15,447
Cost of service and other revenue	3,951	2,126
Total cost of goods sold	16,535	17,573
Gross profit	25,908	24,663
Operating expenses:		
Selling, general and administrative	23,982	26,351
Research and development	9,603	8,761
Change in fair value of contingent consideration	519	(1,201)
Depreciation and amortization	3,815	3,055
Total operating expenses	37,919	36,966
Loss from operations	(12,011)	(12,303)
Other income (expense):		
Interest expense, net	(2,723)	(1,881)
Change in fair value of warrant liability	(298)	—
Loss on extinguishment of debt	(1,671)	—
Other (expense) income, net	39	(373)
Loss before provision for income taxes	(16,664)	(14,557)
Provision for income taxes	(42)	(194)
Net loss	$(16,706)	$(14,751)

Comparison of the years ended December 31, 2020 and 2019

Revenue

	Year ended December 31,		Change	
($ in thousands, except percentages)	**2020**	**2019**	**Amount**	**%**
Product revenue	$33,438	$36,344	(2,906)	(8)%
Service and other revenue	9,005	5,892	3,113	53%
Total revenue	$42,443	$42,236	207	0%

Product revenue decreased by $2.9 million, or 8%, for the year ended December 31, 2020, compared to the year ended December 31, 2019. The decrease was primarily driven by a $2.7 million decrease in instrument revenue resulting from 118 new system placements during the year ended December 31, 2020, compared to 146 new system placements for the year ended December 31, 2019, largely due to a disruption in our customers operations, including laboratory closures. Such decrease is partially offset by a change in mix of instruments sales in 2020 as compared to 2019, in which sales of our Phenoptics instruments, which have a higher

selling price than our CODEX instruments, as compared to total sales was higher in 2020 as compared to 2019. Additionally, there was a $0.6 million decrease in software sales. This was partially offset by an increase of $0.4 million in consumable sales for the year ended December 31, 2020, as compared to the year ended December 31, 2019, resulting from the increase in our installed base. For the year ended December 31, 2020, we maintained an installed base of 550 systems globally, compared to 432 systems for the year ended December 31, 2019.

Service and other revenue increased by $3.1 million, or 53%, for the year ended December 31, 2020, compared to the year ended December 31, 2019. The growth was primarily due to a $1.7 million increase relating to our lab services operations, and a $1.5 million increase from instrument service during the year ended December 31, 2020, primarily driven by the increase in our installed base and customers renewing their service and warranty contracts, partially offset by a $0.1 million decrease in installation, training, and shipping and handling billed to customers.

Costs of Goods Sold, Gross Profit and Gross Margin

	Year ended December 31,		Change	
($ in thousands, except percentages)	**2020**	**2019**	**Amount**	**%**
Cost of product revenue	$12,584	$15,447	$(2,863)	(19)%
Cost of service and other revenue	3,951	2,126	1,825	86%
Total cost of goods sold	$16,535	$17,573	$(1,038)	(6)%
Gross profit	$25,908	$24,663	$ 1,245	5%
Gross margin	61%	58%		

Cost of product revenue decreased by $2.9 million, or 19%, for the year ended December 31, 2020, compared to the year ended December 31, 2019. The decrease in cost of product revenue was primarily driven by a $3.0 million decrease in costs associated with instrument sales and margin efficiencies gained in 2020 through outsourcing manufacturing to new contract manufacturers and partially offset by a $0.1 million increase in consumables driven by the increase in our installed base. Cost of service and other revenue increased by $1.8 million, or 86%, for the year ended December 31, 2020, compared to the year ended December 31, 2019. The increase was primarily due to increases in cost related to: a) increased extended warranty costs as the installed base matured and customers renewed their service contracts; b) more customers purchased extended warranty as the standard warranty expired; c) increases in direct costs services related to the increase in lab services revenue.

Gross profit increased by $1.2 million, or 5%, and gross margin improved by 3% for the year ended December 31, 2020 as compared to the year ended December 31, 2019, primarily due to a higher mix of consumables revenue driven by a higher install base, in addition to lower instrument cost of goods sold due to moving to a new third-party manufacturer and replace the third-party resources noted above.

Operating Expenses

Selling, General and Administrative

	Year ended December 31,		Change	
($ in thousands, except percentages)	**2020**	**2019**	**Amount**	**%**
Selling, general and administrative	$23,982	$26,351	$(2,369)	(9)%

Selling, general and administrative expense decreased by $2.4 million, or 9%, for the year ended December 31, 2020, compared to the year ended December 31, 2019. The decrease was due to a $2.2 million decrease in professional fees and other expenses related to outside legal, accounting, marketing, consulting and IT services as a result of moving from third-party resources to direct hires in 2020, as well as a decrease in travel and entertainment costs of $1.1 million primarily due to travel restrictions from COVID-19. Such decrease is primarily offset by an increase of $0.6 million in personnel-related expenses to support the growth in our overall operations.

Research and development

($ in thousands, except percentages)	Year ended December 31, 2020	2019	Change Amount	%
Research and development	$9,603	$8,761	$842	10%

Research and development expense increased by $0.8 million, or 10%, for the year ended December 31, 2020, compared to the year ended December 31, 2019. The increase was primarily due to a $1.7 million increase in personnel-related expenses, resulting from increased headcount, offset by a decrease of $0.8 million in outside consulting, engineering, and professional services as a result of moving from third party resources to direct hires in 2020.

Change in fair value of contingent consideration

($ in thousands, except percentages)	Year ended December 31, 2020	2019	Change Amount	%
Change in fair value of contingent consideration	$519	$(1,201)	$1,720	(143)%

Change in fair value of contingent consideration increased by $1.7 million, or (143)%, for the year ended December 31, 2020, compared to the year ended December 31, 2019 due to current year remeasurement.

Depreciation and amortization

($ in thousands, except percentages)	Year ended December 31, 2020	2019	Change Amount	%
Depreciation and amortization	$3,815	$3,055	$760	25%

The $0.8 million increase in depreciation and amortization expense was primarily related to an increase in property and equipment in 2020 as compared to 2019.

Interest expense

($ in thousands, except percentages)	Year ended December 31, 2020	2019	Change Amount	%
Interest expense	$2,723	$1,881	$842	45%

Interest expense increased by $0.8 million, or 45%, for the year ended December 31, 2020, compared to the year ended December 31, 2019. The increase was primarily due to increased debt levels in 2020.

Change in fair value of warrant liability

($ in thousands, except percentages)	Year ended December 31, 2020	2019	Change Amount	%
Change in fair value of warrant liability	$298	$—	$298	100%

Change in fair value of warrant liability increased by $0.3 million, or 100%, for the year ended December 31, 2020, compared to the year ended December 31, 2019 due to current year remeasurement.

Loss on extinguishment of debt

($ in thousands, except percentages)	Year ended December 31, 2020	2019	Change Amount	%
Loss on extinguishment of debt	$1,671	$—-	$1,671	100%

Loss on extinguishment of debt increased by $1.7 million, or 100%, for the year ended December 31,2020, compared to the year ended December 31, 2019 due to extinguishment of the Innovatus Term Loan in 2020.

Other income (expense), net

	Year ended December 31,		Change	
($ in thousands, except percentages)	**2020**	**2019**	**Amount**	**%**
Other income (expense), net	$39	$(373)	$412	(110)%

Other expense, net increased by $0.4 million for the year ended December 31, 2020, compared to the year ended December 31, 2019.

Liquidity and Capital Resources

As of December 31, 2020, we had approximately $17.0 million in cash and cash equivalents which were primarily held in U.S. short-term bank deposit accounts.

Since our inception, we have experienced losses and negative cash flows from operations, and as of December 31, 2020, we had a consolidated net loss of $16.7 million and an accumulated deficit of $52.3 million. We have primarily relied on equity and debt financings to fund our operations to date, including most recently raising gross proceeds of $25.0 million through the sale and issuance of Series D convertible preferred stock in 2019.

We expect to incur additional operating losses in the foreseeable future as we continue to invest in the research and development of our product offerings, commercialize and launch platforms, and expand into new markets. Based on our current business plan, we believe the net proceeds from this offering, together with our existing cash and cash equivalents and anticipated cash flows from operations will be sufficient to meet our working capital and capital expenditure needs over at least the next 12 months following the date of this prospectus.

Our future capital requirements will depend on many factors, including, but not limited to our ability to successfully commercialize and launch products, and to achieve a level of sales adequate to support our cost structure. If we are unable to execute on our business plan and adequately fund operations, or if the business plan requires a level of spending in excess of cash resources, we will have to seek additional equity or debt financing. If additional financings are required from outside sources, we may not be able to raise it on terms acceptable to us or at all. If we are unable to raise additional capital when desired, our business, financial condition, results of operations and prospects could be adversely affected.

Sources of Liquidity

Since our inception, we have financed our operations primarily from the issuance and sale of our convertible preferred stock and borrowings under long-term debt agreements.

Convertible preferred stock financings

Through December 31, 2020, we have raised a total of $60.5 million from the issuance and sale of convertible preferred stock, net of costs associated with such financings. Most recently, in 2019 we issued shares of Series D convertible preferred stock for gross proceeds of $25.0 million.

Payroll Protection Program loan

During April 2020, we received a $2.48 million small business loan under the Payroll Protection Program, part of the Coronavirus Aid, Relief and Economic Security Act, the CARES Act. We expect a portion of the loan to be forgiven under the provisions of the program. See “Risks Related to Our Business and Strategy — We received economic stimulus funding under the CARES Act.” If such funding is not forgiven and is required to be repaid pursuant to the terms of the CARES Act or related guidance, our business, results of operations, and financial condition may be materially and adversely affected.” The note

bears interest at a rate of 1.00% and payments are scheduled to begin the latter of March 2021, or upon response by the Small Business Administration regarding our forgiveness application.

Midcap Financial Trust Loan

In October 2020, we entered into a new debt financing arrangement with Midcap Financial Trust, or Term Loan, for a $37.5 million credit facility, consisting of a senior, secured term loan to refinance all existing indebtedness with Innovatus. We realized $32.5 million in aggregate proceeds as a result of the debt financing, and the remaining $5.0 million not yet drawn on the Term Loan is available to be drawn from March 31, 2021, through June 30, 2021. The term of the Midcap loan is interest only for 36-months followed by 24-months of straight-line amortization with a final maturity date of October 27, 2025. Interest on the outstanding balance of the Term Loan shall be payable monthly in arrears at an annual rate of one-month LIBOR plus 6.35%, subject to a LIBOR floor of 1.50%.

The Term Loan is subject to a minimum revenue financial covenant measuring our last twelve months trailing revenue, tested on a monthly basis.

The Term Loan is collateralized by substantially all of our assets. The agreement contains customary negative covenants that limit our ability to, among other things, incur additional indebtedness, grant liens, make investments, repurchase stock, pay dividends, transfer assets and merge or consolidate with any other entity or to acquire all or substantially all the capital stock or property of another entity. The agreement also contains customary affirmative covenants, including requirements to, among other things, deliver audited financial statements. If we default under the Term Loan and if the default is not cured or waived, the lender could cause any amounts outstanding to be payable immediately. Under certain circumstances, the lender could also exercise its rights with respect to the collateral securing such loans. Moreover, any such default would limit our ability to obtain additional financing, which may have an adverse effect on our cash flow and liquidity.

We were in compliance with all covenants under the Term Loan as of December 31, 2020.

Cash flows

The following table summarizes our cash flows for the periods presented:

	Year ended December 31,	
($ in thousands)	**2020**	**2019**
Net cash (used in) provided by:		
Operating activities	$(6,843)	$(13,776)
Investing activities	6,728	(12,892)
Financing activities	5,486	28,561
Net increase (decrease) in cash, cash equivalents, and restricted cash	$ 5,371	$ 1,893

Operating activities

Net cash used in operating activities decreased by $6.9 million to $6.8 million in the year ended December 31, 2020 compared to $13.8 million in the year ended December 31, 2019. This decrease is attributable to a net loss of $16.7 million, partially offset by a net change in our net operating assets and liabilities of $2.4 million, and by non-cash charges of $7.5 million. The change in our net operating assets and liabilities was primarily due to increased accounts receivable $6.7 million, offset by decreases in accounts payable of $3.0 million, and decreases in inventory levels of $0.7 million. Non-cash charges primarily consisted of $3.8 million of depreciation and amortization, $1.7 million in loss on extinguishment of debt, $0.5 million of stock-based compensation, $0.5 million in change in fair value of contingent consideration, $0.4 million of paid-in-kind interest, $0.3 million in change in fair value of warrant liability, and $0.3 million of non-cash interest expense.

Investing activities

Net cash provided in (used in) investing activities was $6.7 million in the year ended December 31, 2020 compared to $(12.9) million during the year ended December 31, 2019. The increase was primarily driven by the maturity of our certificates of deposits of $10.0 million, offset by purchases of property and equipment of $3.3 million.

Financing activities

Net cash provided by financing activities was $5.5 million for the year ended December 31, 2020 compared with $28.6 million for the year ended December 31, 2019. Net cash provided by financing activities during the year ended December 31, 2020 resulted from $8.2 million in cash proceeds related to the refinance of our existing debt, net of debt extinguishment costs and debt issuance costs. Additionally, we paid out $2.6 million in contingent consideration in 2020 as compared to $0.7 million in 2019. Net cash provided by financing activities for the year ended December 31, 2019 resulted primarily from net cash proceeds of $4.5 million related to the refinance of our existing debt, and net cash receipts of $24.8 million from the issuance of Series C and D redeemable convertible preferred stock net of issuance costs.

Concentration of credit risk

For the year ended December 31, 2020, no customers accounted for more than 10% of our revenue. At December 31, 2020, no customers accounted for more than 10% of accounts receivable. For the year ended December 31, 2019, PKI accounted for 30% of revenue as they served as sole distributor of our Phenoptics platform pursuant to the transition agreement following our acquisition of the technology. At December 31, 2019, PKI comprised 21% accounts receivable. No other customers exceeded 10% of revenue for the year ended December 31, 2019.

Qualitative and Quantitative Disclosures About Market Risk

Interest rate risk

Customer financing exposure. We are indirectly exposed to interest rate risk because many of our customers depend on debt financings to purchase our platforms and systems. An increase in interest rates could make it challenging for our customers to obtain the capital necessary to make such purchases on favorable terms, or at all. Such factors could reduce demand or lower the price we can charge for our platforms and systems, thereby reducing our net sales and gross profit.

Fixed rate debt. In October 2020, we entered into Term Loan with Midcap Financial Trust which is due in October 2025, and carries a fixed interest rate of 7.85% per annum. If we refinance the Term Loan or enter into new debt arrangements, interest rates could increase and thereby increase our financing costs and increase our net loss. A hypothetical 100 basis point change in interest rates would have resulted in a $0.1 million increase in interest expense for the year ended December 31, 2020.

Bank deposit, money market and note receivable exposure. As of December 31, 2020, we had cash and cash equivalents, including restricted cash, of $17.5 million, which consisted primarily of bank deposits. The primary objective of our investment is to preserve principal and provide liquidity. These bank deposits generate interest income at variable rates below 1%. A hypothetical 100 basis point decrease in interest rates would have lowered our interest income by $0.0 million and increased our net loss by this amount.

Foreign currency risk

The majority of our revenue has been generated in the United States. As we expand our presence in international markets, to the extent we are required to enter into agreements denominated in a currency other than the U.S. dollar, our results of operations and cash flows may increasingly be subject to fluctuations due to changes in foreign currency exchange rates and may be adversely affected in the future due to changes in foreign exchange rates. To date, we have not entered into any hedging arrangements with respect to foreign currency risk. As our international operations grow, we will continue to reassess our approach to manage our risk relating to fluctuations in currency rates.

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, revenue, expenses and related disclosures. We evaluate our estimates and judgments on an ongoing basis. We base our estimates on historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results could therefore differ materially from these estimates under different assumptions or conditions.

While our significant accounting policies are described in more detail in Note 2 to our audited consolidated financial statements, we believe the following accounting policies to be critical to the judgments and estimates used in the preparation of our consolidated financial statements.

Impairment of long-lived assets and goodwill

The Company evaluates its long-lived assets, including demo inventory, for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If indications of impairment exist, projected future undiscounted cash flows associated with the asset or asset group are compared to the carrying amount to determine whether the asset's value is recoverable. During this analysis, the Company reevaluates the significant assumptions used in determining the original cost and estimated lives of long-lived assets. Although the assumptions may vary from asset to asset, they generally include operating results, changes in the use of the asset, cash flows and other indicators of value. The Company then determines whether the remaining useful life continues to be appropriate or whether there has been an impairment of long-lived assets based primarily upon whether expected future undiscounted cash flows are sufficient to support the assets' recovery. If impairment exists, the Company would adjust the carrying value of the asset to fair value, generally determined by a discounted cash flow analysis. If the carrying value of the asset exceeds such projected undiscounted cash flows, the asset will be written down to its estimated fair value.

The Company tests goodwill for impairment annually and tests intangible assets for impairment whenever events or changes in circumstances indicate that the carrying value of the asset may not be recoverable (i.e., upon occurrence of a triggering event). The Company performs its annual impairment review of goodwill on November 1 of each calendar year (and if and when triggering events occur between annual impairment tests).

Revenue recognition

The Company follows ASC 606, Revenue from Contracts with Customers, or ASC 606.

We derive revenue from two primary sources, product revenue, which is comprised primarily of instrument sales revenue, consumables revenue, and software revenue, as well as service revenue, which is comprised of, service and warranty, and laboratory services revenue. Revenue is recognized net of applicable taxes imposed on the related transaction.

We recognize revenue when we satisfy the performance obligations under the terms of a contract and control of our products and services is transferred to our customers in an amount that reflects the consideration we expect to receive from our customers in exchange for those products and services. This process involves identifying the contract with a customer, determining the performance obligations in the contract, determining the contract price, allocating the contract price to the distinct performance obligations in the contract based on standalone selling price, and recognizing revenue when the performance obligations have been satisfied. A performance obligation is considered distinct from other obligations in a contract when it provides a benefit to the customer either on its own or together with other resources that are readily available to the customer and is separately identified in the contract. We consider a performance obligation satisfied once we have transferred control of a good or service to the customer, meaning the customer has the ability to use and obtain the benefit of the good or service.

Our agreements with customers often include multiple performance obligations, which can sometimes be included in separate contracts entered into within a reasonably short period of time. We consider an entire customer arrangement to determine if separate contracts should be considered combined for the purposes of revenue recognition.

In order to determine the stand-alone selling price, we conduct a periodic analysis to determine whether various goods or services have an observable stand-alone selling price as well as to identify significant changes to current stand-alone selling prices. If we do not have an observable stand-alone selling price for a particular good or service, then the stand-alone selling price for that particular good or service is estimated using an approach that maximizes the use of observable inputs. Our process for determining stand-alone selling price requires judgment and considers multiple factors that are reasonably available and maximizes the use of observable inputs that may vary over time depending upon the unique facts and circumstances related to each performance obligation. We believe that this method results in an estimate that represents the price we would charge for the product offerings if they were sold separately.

Taxes, such as sales, value-added and other taxes, collected from customers concurrent with revenue generating activities and remitted to governmental authorities are not included in revenue. Shipping and handling costs associated with outbound freight are accounted for as a fulfillment cost and are included in cost of sales.

The following describes the nature of our primary types of revenue and the revenue recognition policies and significant payment terms as they pertain to the types of transactions we enter into with our customers.

Product revenue

Product revenue is comprised of three major revenue streams, instrument sales, consumables, and standalone software products. Instrument sales revenue is comprised of sales of Codex and Phenoptics platforms. Consumables revenue is comprised of reagent kits. We also sell software licenses, both internally developed as well as third party software. Our standard arrangement with our customers is generally a purchase order or an executed contract. Revenue is recognized upon transfer of title. Payment terms are generally thirty to ninety days from the date of invoicing.

Service and other revenue

Service and other revenue primarily consists of instrument service and warranty, instrument installation and training, and revenue generated by our Lab Services operation, which provides sample testing services to customers. Our services are provided primarily on a fixed fee basis; from time to time these fixed fee contracts may be invoiced at the outset of the arrangements. We recognize revenue from the sale of an extended warranty, enhanced service warranty arrangements over the respective period, while revenue on installation, training and laboratory services is recognized as the services are performed. For laboratory services, we generally use the cost-to-cost approach to measure the extent of progress towards completion of the performance obligation because we believe it best depicts the transfer of assets to the customer. Under the cost-to-cost measure approach, the extent of progress towards completion is measured based on the ratio of costs incurred to date to the total estimated costs at completion of the performance obligation. Revenues are recorded proportionally as costs are incurred. Payment terms are generally thirty to ninety days from the date of invoicing.

The Company records shipping and handling billed to customers as service and other revenue and the related costs in cost of other revenue in the consolidated statement of operations.

Contract assets and contract liabilities

The Company’s contract liabilities consist of upfront payments for service-based warranties on instrument sales. The Company classifies these contract liabilities in deferred revenue as current or noncurrent based on the timing of when the Company expects to service the warranty.

Costs to obtain or fulfill a contract

Under ASC 606, the Company is required to capitalize certain costs to obtain customer contracts and costs to fulfill customer contracts. These costs are required to be amortized to expense on a systemic basis that is consistent with the transfer to the customer of the goods or services to which the asset relates, compared to previously being expensed as incurred. As a practical expedient, the Company recognizes any incremental costs to obtain a contract as an expense when incurred if the amortization period of the asset is one year or less.

Redeemable convertible preferred stock

The Company has classified redeemable convertible preferred stock as temporary equity on the accompanying consolidated balance sheet because it becomes redeemable due to the passage of time or could become redeemable due to certain change in control clauses that are outside of the Company's control. The redeemable convertible preferred stock is adjusted to the redemption value over time through the date of the earliest redemption date. These increases are recorded as charges against retained earnings, if any, and then to additional paid-in capital. Then, in the absence of additional paid-in capital, the accretion is charged to the accumulated deficit.

Stock-based compensation

We maintain an incentive compensation plan under which incentive stock options and nonqualified stock options are granted primarily to employees and non-employee consultants. Stock-based compensation cost is measured at the grant date, based on the fair value of the award, and is recognized as expense over the requisite service period. The fair value of stock-based awards to employees is estimated using the Black-Scholes option pricing model. We record forfeitures as they occur.

Stock-based compensation expense for non-employee stock options is measured at the grant date based on fair market value using the Black-Scholes option pricing model and is recorded as the options vest. Prior to January 1, 2020, nonemployee stock options subject to vesting were revalued periodically over the requisite service period, which was generally the same as the vesting term of the award. From January 1, 2020, the grant date fair market value of non-employee stock options is recognized in the consolidated statement of operations on a straight-line basis over the requisite service period and forfeitures are recognized as they occur.

Common Stock Valuations Prior to our IPO

There has been no public market for our common stock to date. As such, the estimated fair value of our common stock has been determined at each grant date by our board of directors, with input from management, based on the information known to us on the grant date and upon a review of any recent events and their potential impact on the estimated per share fair value of our common stock. As part of these fair value determinations, our board of directors obtained and considered valuation reports prepared by a third party valuation firm in accordance with the guidance outlined in the American Institute of Certified Public Accountants Technical Practice Aid, Valuation of Privately-Held-Company Equity Securities Issued as Compensation.

As of December 31, 2020, in contemplation of an initial public offering, we estimated the enterprise value of our business using a hybrid approach in determining the fair value of our common stock that includes a probability-weighted expected return method, or PWERM, and an option pricing method, or OPM. Under a PWERM, the fair market value of the common stock is estimated based upon an analysis of future values for the enterprise assuming various future outcomes. Within one of those potential outcomes, we utilized the OPM. The OPM treats the rights of the holders of convertible preferred stock and common stock as equivalent to that of call options on any value of the enterprise above certain break points of value based upon the liquidation preferences of the holders of preferred stock, as well as their rights to participation and conversion. Based on the timing and nature of an assumed liquidity event in each scenario, a discount for lack of marketability either was or was not applied to each scenario, as appropriate. We then probability-weighted the value of each expected outcome to arrive at an estimate of fair value per share of common stock.

In addition to considering the results of these third party valuation reports, our board of directors used assumptions based on various objective and subjective factors, combined with management judgment, to determine the fair value of our common stock as of each grant date, including:

- the prices at which we sold shares of preferred stock and the superior rights and preferences of the preferred stock relative to our common stock at the time of each grant;
- external market conditions affecting the life sciences research and development industry and trends within the industry;
- our stage of development and business strategy;
- our financial condition and operating results, including our levels of available capital resources, and forecasted results;
- developments in our business;
- the progress of our research and development efforts;
- equity market conditions affecting comparable public companies; and
- general United States market conditions and the lack of marketability of our common stock.

Application of these approaches involves the use of estimates, judgment and assumptions that are subjective, such as those regarding our expected future revenue, expenses and future cash flows, discount rates, market multiples, the selection of comparable companies and the probability of possible future events. Changes in any or all of these estimates and assumptions or the relationships between those assumptions impact our valuations as of each valuation date and may have a material impact on the valuation of our common stock. For valuations after the completion of this initial public offering, our board of directors will determine the fair value of each share of underlying common stock-based on the closing price of our common stock as reported on the date of grant.

Recent accounting pronouncements

For information on recently issued accounting pronouncements, see Note 2 to our consolidated financial statements in this prospectus.

JOBS Act accounting election

We are an “emerging growth company,” as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. We have elected to avail ourselves of this extended transition period, and, as a result, we will not be required to adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies. We intend to rely on other exemptions provided by the JOBS Act, including without limitation, not being required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act of 2002.

Smaller reporting company status

We are also a “smaller reporting company,” meaning that the market value of our stock held by non-affiliates plus the proposed aggregate amount of gross proceeds to us as a result of this offering is less than $700 million and our annual revenue is less than $100 million during the most recently completed fiscal year. We may continue to be a smaller reporting company after this offering if either (i) the market value of our stock held by non-affiliates is less than $250 million or (ii) our annual revenue is less than $100 million during the most recently completed fiscal year and the market value of our stock held by non-affiliates is less than $700 million. If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. Specifically, as a smaller reporting company we may choose to present only the two most recent fiscal years of audited financial statements in our Annual Report on Form 10-K and, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

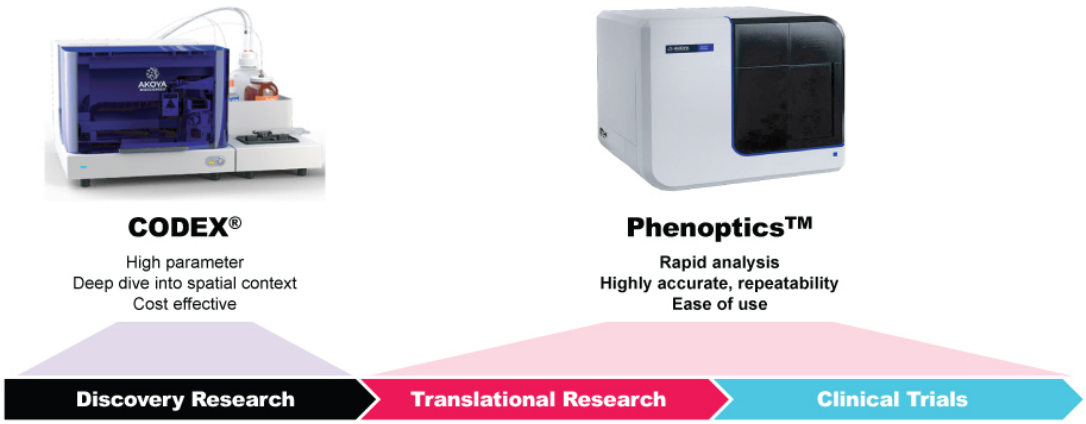
BUSINESS

Overview

We are an innovative life sciences technology company delivering spatial biology solutions focused on transforming discovery and clinical research. Our mission is to deliver a revolutionary new class of spatially derived biomarkers that empower life sciences researchers to better understand disease and clinicians to improve patient outcomes. Spatial biology refers to a rapidly evolving technology that enables academic and biopharma scientists to detect and map the distribution of cell types and biomarkers across whole tissue samples at single cell resolution, enabling advancements in their understanding of disease progression patient response to therapy. Through our CODEX and Phenoptics platforms, reagents, software and services, we offer end-to-end solutions to perform tissue analysis and spatial phenotyping across the full continuum from discovery through translational and clinical research.

Our spatial biology solutions measure cells and proteins by providing biomarker data in its spatial context while preserving tissue integrity. Biomarkers are objective measures that capture what is happening in a cell or tissue at a given moment. Current genomic and proteomic methods, such as NGS, single-cell analysis, flow cytometry and mass spectrometry, are providing meaningful data but require the destruction of the tissue sample for analysis. While valuable and broadly adopted, these approaches allow scientists to analyze the biomarkers and cells that comprise the tissue but do not provide the fundamental information about tissue structure, cellular interactions and the localized measurements of key biomarkers. Furthermore, current non-destructive tissue analysis and histological methods provide some limited spatial information, but they only measure a minimal number of biomarkers at a time and require expert pathologist interpretation. Our platforms address these limitations by providing end-to-end solutions that enable researchers to quantitatively interrogate a large number of biomarkers and cell types across a tissue section at single cell resolution. The result is a detailed and computable map of the tissue sample that thoroughly captures the underlying tissue dynamics and interactions between key cell types and biomarkers, a process now referred to as spatial phenotyping. We believe that we are the only business with the breadth of platform capabilities that enable researchers to do a deep exploratory and discovery study, and then further advance and scale their research through the translational and clinical phases, leading to a better understanding of human biology, disease progression and response to therapy.

We offer two distinct platforms for spatial phenotyping, each designed to serve the unique needs of our customers in the discovery, translational and clinical markets. The first, CODEX, is an ultra-high parameter and cost-effective platform ideally suited for discovery research with the ability to identify more than 40 biomarkers in a tissue sample. The second, Phenoptics, is a high-throughput platform with the automation and robustness needed for translational and clinical applications. Both offer seamless and integrated workflow solutions for our customers, including important benefits such as flexible sample types, automated sample processing, scalability, comprehensive data analysis and software solutions and dedicated field and applications support. With these platforms, our customers are performing spatial phenotyping to further advance their understanding of diseases such as cancer, neurological and autoimmune disorders, and many other therapeutic areas.



Our co-founder and director, Dr. Garry Nolan, originally developed our CODEX technology to better identify biomarkers in discovery research while leading a team at Stanford. We license certain patents, know-how and proprietary technology utilized in our CODEX instrument from Stanford. In order to expand our offerings to the translational and clinical markets, we acquired our Phenoptics platform in 2018 from PKI, from whom we license certain patents incorporated into our Phenoptics instruments.

As of December 31, 2020, we have over 550 instruments installed across a broad group of customers throughout North America, Europe and APAC, reflecting an increase of 27% in the number of instrument placements over 2019. Our full set of proprietary reagents, software and services allows us to drive a stream of attractive, recurring and high margin revenue through our installed base, which will grow as we continue to expand our instrument base and implement workflow advancements. We generated total revenue of $42.2 million in the year ended December 31, 2019 and $42.4 million in the year ended December 31, 2020, successfully managing through significant COVID-19 headwinds, realizing year-over-year growth and minimizing losses through cost containment. We incurred net losses of $14.8 million for the year ended December 31, 2019 and $16.7 million in the year ended December 31, 2020.

Our Competitive Strengths

We believe the growth of our business will be propelled by our competitive strengths, including:

Established leader in the spatial biology market with a strong competitive position and proven products. We believe we are the leading spatial biology company, offering products to hundreds of customers across a diverse base, including leading biopharma companies, academic research centers and governmental institutions worldwide. As the pioneers and leaders in the spatial biology market, we view our suite of solutions as uniquely positioned to address the varying customer needs across all market segments, from discovery through translational and clinical research. Our instrument base has expanded significantly over the last several years with over 550 instruments currently in the market as of December 31, 2020, a 27% increase over 2019. The rate of publications with our technology as a centerpiece has accelerated greatly, with 109 peer-reviewed publications written in 2020, a 374% increase over 2019. A key driver of these publications and our commercial expansion is the growing body of evidence that spatial biology solutions are increasingly becoming preferred as a biomarker platform of choice. A seminal JAMA Oncology publication in 2019 establishes the predictive power of spatial biomarker technologies in predicting response to immuno-oncology therapeutics versus the current technologies such as gene expression, NGS and standard diagnostic PD-L1 biomarker assays. We believe that the combination of our broad customer base, expert management team, large instrument installed base, intellectual property protection and extensive and accelerating publication list helps establish our leading position in spatial biology.

Comprehensive solutions that address the entire continuum. We are a fully dedicated spatial biology company with a purpose-built portfolio offering instruments, consumables, related software and services to serve the unique needs of our customers from discovery through translational and clinical research. Our CODEX platform is ideal for discovery research, providing ultra-high parameter biomarker discovery,

with the ability to analyze more than 40 biomarkers at a time at single-cell resolution across the entire tissue sample. Our Phenoptics platform is ideal for translational and clinical research providing a fully automated end-to-end solution with high reproducibility and throughput and ability to easily process over 25 samples a day. Providing complete solutions across this full continuum allows us to serve our customers' full biomarker lifecycle. Comprehensive biomarker discovery is first enabled on CODEX. Potentially predictive biomarkers of interest for translational and clinical studies are then analyzed at scale on Phenoptics.

Relationships with leading biopharma companies, top research institutions and medical centers. We have relationships with thought leaders such as Dana Farber Cancer Institute, Johns Hopkins University, UCSF, and MD Anderson, and many other leading biopharma companies, top research institutions and medical centers and contract research organizations. These collaborations and partnerships help demonstrate the utility of our solutions across a broad array of applications, including immuno-oncology, immunology, neuroscience and developmental biology. As we partner with leading companies and institutions, we gain access to valuable customer feedback and insight. With the use of our solutions informing their development efforts:

- *Stanford University and the University of Bern* used the CODEX platform for deep phenotyping of advanced-stage colorectal cancer patient tissue with more than 40 protein markers simultaneously, and at single-cell resolution. Through their use of our technology, they defined a new biological classification unit of cellular groups known as "neighborhoods". These neighborhoods represent a completely novel organizing principle for understanding cellular activity in the tumor microenvironment and provide a robust analytical framework to better understand colon cancer progression, potentially novel diagnostics and new targets for therapeutic intervention.
- *Johns Hopkins University* developed an interdisciplinary partnership between the Hopkins Kimmel Cancer Center and the Department of Physics and Astronomy called AstroPath with our Phenoptics platform as the centerpiece. Leveraging their leadership in both cancer research and astrophysics, AstroPath is applying astronomy algorithms to Phenoptics imaging data to rapidly identify and optimize predictive phenotypic signatures predicting response to immuno-therapies. With our support, the longer-term aim is to create a publicly accessible archive of analyzed tumor samples to help accelerate the field of spatial biology-based immuno-oncology biomarkers.
- *Dana Farber Cancer Institute and Brigham Health* recently announced the availability of their ImmunoProfile assay, an assay they developed on our Phenoptics platform to profile the tumors of immuno-therapy eligible patients. This assay is physician orderable and integrates into their clinical pathology workflow alongside NGS-based tumor profiling.
- *A Top 5 Pharmaceutical Company* has adopted the Phenoptics platform for immuno-oncology biomarkers and made Phenoptics a central part of their biomarker drug development strategy leveraging both their internal capacity of four systems and our contract lab services capabilities. Since their adoption of Phenoptics, the company has rapidly expanded the use of Phenoptics from validation and exploratory studies to biomarker discovery programs and further to assessing ongoing clinical trial samples. They are now evaluating the use of Phenoptics to support enrollment in clinical trials.

Large, addressable and rapidly evolving market. The spatial biology market sits within a larger life sciences technology market. Within this market, spatial biology is currently estimated to be over $17 billion. The market for spatial biology encompasses the full research and drug development continuum, ranging from discovery through translational and clinical research markets. Each of these specific market segments have unique application and workflow needs and require fit for purpose product offerings. Today, our products and solutions are primarily sold into the cancer discovery and translational markets, representing a $5 billion addressable market. We believe that our offerings can be readily extended to serve adjacent application areas, including immunology and neurobiology, and as well applications in clinical markets, certain of which may require obtaining FDA approval for our products. We currently estimate that within the spatial biology market, half of the opportunity is in the discovery and translational research markets and the other half is in the clinical market. With the growing adoption and innovation of spatial biology solutions and as spatial phenotyping is further validated through rapid acceleration of peer-reviewed publications, we believe the global TAM will continue to grow over the near and long-term horizon. Given the critical need for

spatial biology, we believe our products are uniquely suited to address the specific needs of researchers across this continuum from discovery through translational and clinical markets.

Our people. Our success begins with our people. All of our employees contribute to keeping Akoya at the forefront of the spatial biology market, from research and development, to sales and marketing, to operations and management. Our management team has extensive industry experience among a diversified base of leading companies in the healthcare industry, as well as significant experience with acquisitions and integration of technology. The experiences and skills gained during these prior multi-disciplinary employments will allow our team to continue to execute on current plans and identify future opportunities and build products and services to meet them.

Our Growth Strategy

Our growth strategy includes the following key elements:

Enhance sales and marketing efforts to drive adoption of our solutions with new and existing customers. Our solutions enable researchers to map the distribution of key cell types and biomarkers in normal and disease tissue. We recently commissioned a report of researchers and surveyed their views of and plans to invest in spatial biology platforms and solutions, and approximately 44% of respondents indicated that they intend to purchase a spatial profiling platform. To capitalize on this opportunity to drive adoption of our platforms across the entire market, we intend to invest heavily to expand our sales and marketing organizations, increase the scale of our outbound marketing activities, invest in our commercial organization and deliver new, market-leading solutions to our customers. Sales productivity and output will be achieved by expanding our global team of dedicated regional instrument and reagents sales specialist, building an inside sales team and hiring additional dedicated scientific pre- and post-sales applications specialists. A key focus of the expanded applications specialists will be to drive further platform adoption and utilization within our existing customer base to increase our recurring proprietary reagent and software revenue. Application expansion, workflow improvements, the continued endorsement through peer-reviewed publications, a significant presence at trade conferences and an active digital platform are examples of key drivers of continued and growing market awareness and the expansion of our commercial footprint within new and existing customers.

Invest in new applications, content development and workflow improvements to drive pull through. Our research and development team is dedicated to continuously developing and improving our instruments, reagents menu, software solutions delivering a full end-to-end workflow and expanding our menu applications. Our instruments are designed to be used with our proprietary reagents. Currently, we offer an extensive menu of reagents, kits, antibodies and other consumables across our CODEX and Phenoptics platforms. Researchers have the ability to choose a mixture of our products to customize and design panels to study their biomarkers of interest. As our research and development team identify and launch new applications and biomarker content, we expect to drive incremental pull through revenue from existing and new customers. Similarly, our workflow improvements and the acceleration of data analysis through continued software advancements will further increase customers' use of our platforms. We believe this incremental software revenue and consumable pull through will help solidify our solutions with researchers and improve our recurring revenue base and margin profile.

Continued expansion of next-gen cloud-based data analysis and collaboration platform. We are focused on delivering rapid and advanced data analysis and visualization tools that accelerate the timeline from image acquisition to extracting biological meaning. Because many of our customers work on projects collaboratively both internally and externally, it is imperative to provide a platform that enables data sharing and collaboration, as well as powerful next-generation automated data analysis solutions. Our cloud-based Proxima software is an open solution designed to store and share images as well as support visualization and analysis solutions available in the market. The ability to enable artificial intelligence methods will help solve the growing big data challenges associated with spatial biology and enable the accelerated development of even more advanced analysis methods, thereby increasing the speed of collaborations and biomarker discovery across laboratories. These improved analytical capabilities of our solutions will help increase further incremental use of our instruments and consumables.

Investment in clinical developments to demonstrate validity. Our collaborations with key opinion leaders in major cancer institutions, universities and large biopharma customers provide us with visibility into our platform's potential to advance from translational research to true clinical use. The learnings from these institutions directly informs the required platform investments, clinical studies and regulatory strategy necessary to continue this advancement. Partnerships such as those with UCSF, Johns Hopkins and the Dana Farber Cancer Institute help drive the demonstration and validation of the clinical utility of our platform. In partnership with these and other key opinion leaders, we will establish clinical industry standards that further solidify our platform as the go-to clinical spatial biology solution. We plan to pursue the development and publication of data on our approach, similar to the approach taken by industry stakeholders involved in NGS-based tests for targeted cancer therapies. In parallel, through our continued partnership with key biopharma companies, particularly with their immuno-oncology franchises, will hope to establish our platforms as the preferred clinical trial biomarker solution and enable potential companion diagnostic partnerships in the long term. By providing our end-to-end workflows to industry leading partners and clinicians and directly participating in validating the clinical utility of our platform through peer-reviewed publications, we will establish an ongoing cadence and pipeline to further improve our workflows and deliver clinical proof points for our sales and marketing teams to accelerate adoption in the clinical diagnostic market.

Industry and Market Opportunity

Genomic analysis techniques have evolved from bulk genomics to single-cell analysis, and proteomic techniques such as mass spectrometry are advancing to provide cutting-edge unbiased approaches. In parallel, there is a growing need in areas such as immuno-oncology for more predictive biomarkers that can accurately predict a patient's response to therapy. Spatial biology has emerged as a potential answer to these needs and represents one of the next major frontiers in life sciences research. It has become a key area of focus for researchers and clinicians alike as spatial phenotyping is able to measure protein and cellular interactions, while maintaining spatial context within a selected tissue sample. The result is a visual and computable measurement of histological patterns and an in-depth understanding of disease pathology, adding a new dimension of insights from discovery through clinical and translational research. By providing single-cell resolution with spatial context within a single platform, researchers are able to achieve an understanding of how even small subpopulations of cells can play pivotal roles in disease pathology and patient outcome. In addition, recent innovations within proteomics have enabled unprecedented identification of novel proteins, expanding the need for spatial biology platforms that can functionally characterize these newly discovered proteins.

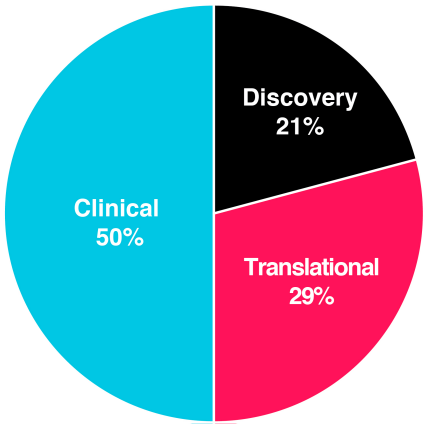
While spatial biology has many applications, spanning from early discovery through clinical research, the leading applications today include:

- *Immuno-oncology:* profiling of a tumor and its microenvironment.
- *Immunology:* supporting sub-specialties such as autoimmune disorders and transplant medicine.
- *Neuroscience:* characterizing neuroinflammation and neurodegeneration.
- *Infectious disease*: understanding the underlying biology of infectious diseases and immune response.
- *Developmental biology:* understanding tissue differentiation and stem cell biology to inform cell therapy development.
- *Dermatology:* immunophenotyping atopic dermatitis, psoriasis and similar dermatological conditions.
- *Other notable applications:* immunology research and broader disease pathology.

The spatial biology market sits within a larger life sciences technology market. Within this market, spatial biology is currently estimated to be over $17 billion across the discovery, translational and clinical research markets with immediate applications in cancer — especially immuno-oncology — as well as immunology, neurobiology, autoimmune disorders, infectious disease, and more. The market for spatial biology encompasses the full research and drug development continuum ranging from discovery through

translational and clinical research markets. Each of these specific market segments have unique application and workflow needs and require fit for purpose product offerings. Today, our products and solutions are primarily sold into the cancer discovery and translational markets, representing a $5 billion addressable market. We believe that our offerings can be readily extended to serve adjacent application areas, including immunology and neurobiology, and as well applications in clinical markets, certain of which may require obtaining FDA approval for our products. We currently estimate that within the spatial biology market, half of the opportunity is in the discovery and translational research markets and the other half is in the clinical market. With the growing adoption and innovation of spatial biology solutions and as spatial phenotyping is further validated through rapid acceleration of peer-reviewed publications, we believe the global TAM will continue to grow over the near and long-term horizon. Given the critical need for spatial biology, we believe our products are uniquely suited to address the specific needs of researchers across the continuum from discovery through translational and clinical markets.

Current spatial biomarker market for cancer, immunology and neurobiology >$17bn



Single-Cell with Spatial Context

Single-cell analysis enables the unbiased discovery of known and unknown cell types within a sample; it measures gene and protein expression on a cell-by-cell basis by preserving information about the cell of origin for each analyte measured. Adding spatial context to single-cell analysis provides a wealth of information to visualize tissue organization and disease pathology on a molecular level. Spatial phenotyping using multiplex immunofluorescence (“mIF”) allows for efficient mapping of cell-to-cell interactions and expression of key biomarkers across an entire tissue. Therefore, by integrating single-cell resolution and spatial context in a single solution, we provide both the “what” and “where” that can lead to critical insights that would otherwise be unattainable.

Pressing Need for more Predictive Biomarkers in Immuno-Oncology

Over the last several years, immuno-oncology has been among the most active therapeutic areas at large pharmaceutical companies with an estimated market size of $33 billion in 2019 and over 5,000 active clinical trials. As a result, there has been a heightened focus and significant investment dedicated to the discovery of predictive biomarkers in immuno-oncology that provide more predictable measures of disease progression and response to therapy in the clinical setting. A recent research study, published in JAMA Oncology, assessed the probability of current biomarker technologies such as NGS, RNA analysis, standard histology and spatial phenotyping to predict patient response to immuno-therapies and found spatial phenotyping to be the superior method for biomarker analysis. In addition, the technology’s ability to monitor the physiological states of tumor cells over time, while maintaining integrity of the tissue, enables

researchers to find correlations to drug resistance and tumor mutations, which could meaningfully facilitate the discovery and development of the next-generation of cancer diagnostics and therapies.

Market needs

While NGS and single-cell analysis have led to paramount scientific advances in de-mystifying the genome, and flow cytometry and mass spectrometry have enabled researchers to gain valuable data troves used for improved biomarker analysis, these technologies fail to provide any spatial context to the genes, proteins and cells measured. As a result, there is a clear and unmet need for spatial biology tools in the life sciences research market, from discovery through translational and clinical research. We view the emergence of spatial analysis as largely complementary to current technologies by offering deeper more contextual insights into the genome, proteome and cellular activity.

Discovery researchers are limited by the tools available within their arsenal. In recent years, the research community has fully embraced single-cell solutions as they have delivered unprecedented insights and facilitated novel medical breakthroughs. However, while single-cell technologies continue to evolve and improve, providing greater insights into cellular makeup and biomarker expression, existing technologies require the full destruction of the tissue and sacrifice all spatial information. Thus, while significant value has been realized from single-cell analysis, spatial phenotyping promises to be the next-generation biomarker solution aiming to provide an in-depth understanding of biological function and disease pathology through a visual and computable map of histological patterns.

Clinical researchers are facing a lack of predictive biomarkers, particularly in immuno-oncology, which limit successful patient outcomes and efficiency in clinical development and deployment of novel therapies. Although targeted therapies have enjoyed many notable successes — to which NGS has been a key driver of this innovation — there remains a critical need for validated predictive biomarkers in immuno-oncology, which could disrupt the current paradigm for patient care and drug development. While significant efforts are being made in the discovery of more predictive biomarkers in immuno-oncology, there is still an ongoing and recognized unmet need. Just as NGS did for targeted cancer therapeutics, we believe spatial biology solutions will provide the necessary biological understanding and predictive power to further accelerate the field of immuno-oncology. All of our products and solutions sold today are for research use only. For future applications in clinical markets, our products may require FDA approval.

Our Platforms

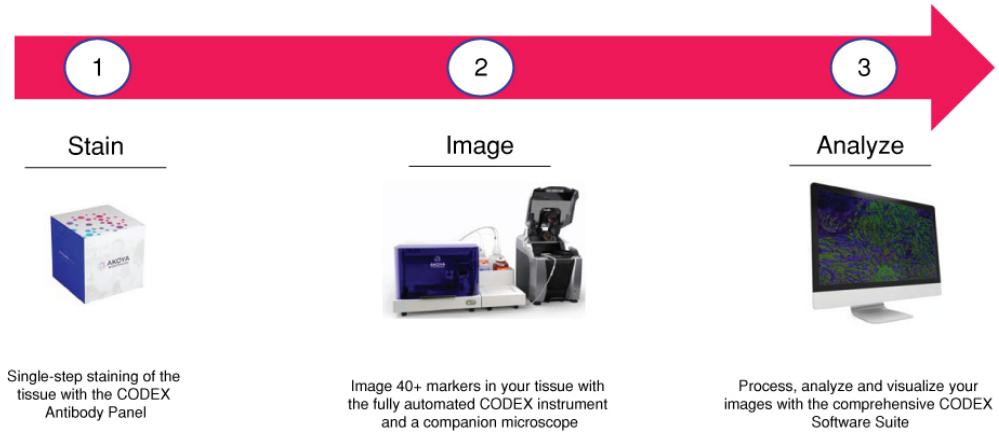
We offer two distinct platforms for spatial phenotyping, each designed to serve the unique needs of our customers in the discovery, translational and clinical markets. The first, CODEX, is an ultra-high parameter and cost-effective platform ideally suited for discovery and research. The second, Phenoptics, is a high-throughput platform with the automation and robustness needed for translational and clinical applications. Each offer seamless and integrated workflow solutions for our customers, including important benefits such as flexible sample types, automated sample processing, scalability, comprehensive data analysis and software solutions and dedicated field and applications support. With these platforms, our customers are performing spatial phenotyping and developing a deeper understanding of complex diseases such as cancer, neurological and autoimmune disorders, and many other therapeutic areas. We believe through these two platforms, we are fulfilling our mission to empower life sciences researchers and clinicians to better understand the onset, advancement, treatment, prevention and monitoring of disease.

CODEX

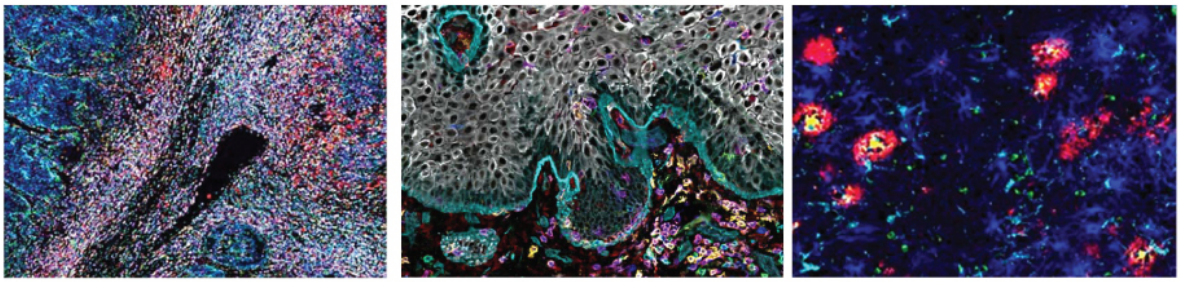
Our CODEX (Co-Detection by indEXing) instrument is a powerful, yet simple, compact bench-top fluidics system that integrates with a companion microscope to automate image acquisition. It provides a comprehensive spatial biology solution, converting our customer’s standard fluorescent microscope into an automated imaging system to produce ultra-high parameter multiplex images capable of providing in situ analysis at the cellular and subcellular scales. CODEX is the only instrument capable of efficiently capturing greater than 40 biomarkers in a single tissue sample at single-cell resolution, while preserving tissue architecture, making it the ideal instrument for biomarker discovery. With over 120 biobanks around the world today, most of the researchers utilizing these biobanks are using inferior products, limiting discovery and spending valuable resources. Originally developed in the lab of Dr. Garry Nolan at Stanford University,

CODEX uses antibodies conjugated to a proprietary library of oligonucleotides called Barcodes. This enables customizable panels of greater than 40 antibodies to be combined for a single tissue staining reaction.

Not only is CODEX a powerful tool for discovery, it is also highly intuitive, and appeals to both novice and experts in the field of tissue analysis. The experimental workflow for CODEX is summarized below.



CODEX Image Examples



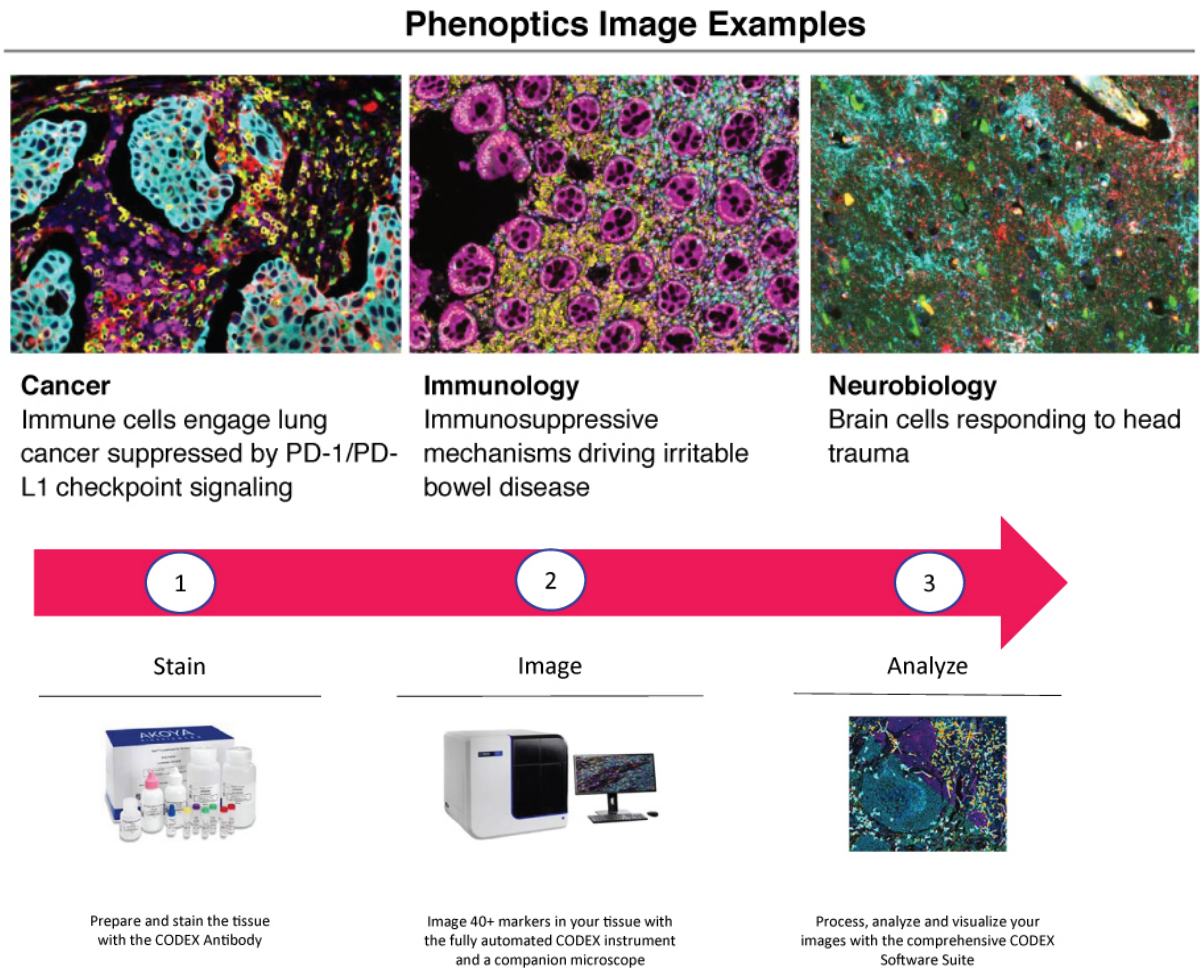
Cancer
Immune cells infiltrating tumor in renal tissue

Immunology
Psoriasis skin sample showing immune cells infiltration

Neurobiology
Inflammation association with plaque formation in Alzheimer brain tissue

Phenoptics

For a deeper understanding of disease and patient response to therapy in large scale studies, translational and clinical researchers need a robust and automated spatial biology solutions. Our Phenoptics platform enables researchers to visualize, analyze, quantify and phenotype cells in situ, in fresh frozen or FFPE tissue sections, and tissue microarrays (“TMAs”) utilizing an automated and high-throughput workflow. Proprietary multispectral imaging removes autofluorescence background and precisely measures fluorescent values for each biomarker with subcellular resolution, enabling researchers to capture the multiple interactions occurring between key biomarkers and cells. In contrast, inferior solutions on the market lack the necessary ability to precisely isolate and measure the different fluorescence channels due to color bleed. Users of our platform have confidence in the accuracy of the quantified interactions occurring in the biology of the cell. In addition, just as with CODEX, we offer a simple and easy workflow to stain, image and then analyze tissue samples for the high throughput translational and clinical applications.



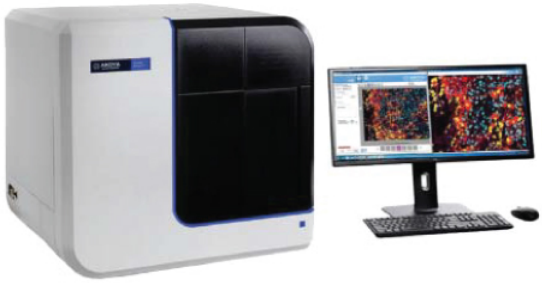
- The Phenoptics product line is currently comprised of three scanners: the Mantra 2 Quantitative Pathology Workstation, Vectra 3 Automated Quantitative Pathology Imaging System, and Vectra Polaris Automated Quantitative Pathology Imaging System. The Vectra Polaris is the most recent in this family of microscopes and represents our signature and most popular solution in the translational and clinical markets.
    - *Mantra 2 Quantitative Pathology Workstation*: The Mantra 2 Quantitative Pathology Workstation is a single slide manual microscope that incorporates multispectral imaging technology, image acquisition and analysis with the inForm software and can be used with a variety of reagents including Akoya's Opal reagent kits (as further described below). This instrument is compact and ideal for initial multispectral imaging for assay development prior to scale up on our Vectra Polaris system, and is easily integrated with our Phenoptics software.

Mantra Quantitative Pathology Workstation

- *Vectra 3 Automated Quantitative Pathology Imaging System:* Vectra 3 is an automated microscope with six-slide capability and pioneered the ability to accurately detect and measure multiple weakly expressed and overlapping biomarkers on a single tissue at the single cell level, allowing for insight to biomarker expression and morphometric characteristics in intact tissue sections. Using our Phenoptics software paired with our Vectra 3 instrument, researchers are able to automatically identify specific tissue types, accelerating research efforts.

Vectra 3 Automated Quantitative Pathology Imaging System

- *Vectra Polaris Automated Quantitative Pathology Imaging System:* Vectra Polaris is our premier and newest digital pathology slide scanner featuring MOTiF whole-slide multispectral scanning of up to 7 biomarkers with an 80 slide capacity. Because of the proprietary optical components coupled to our reagents and software, it is uniquely able to accurately detect and measure weakly expressed and overlapping biomarkers within a single tissue section. It also supports multiple applications including Hematoxylin and Eosin ("H&E"), immunohistochemistry (IHC), mIF on fresh frozen or FFPE tissue section or TMA. The whole slide multispectral imaging capability creates a simpler, more robust workflow as fields of view do not need to be selected, eliminating selection bias and accelerating the time to result. The Vectra Polaris can also scan brightfield slides for downstream analysis, such or traditional DAB IHC, or scan regions of interest across a whole slide with up to 9 biomarkers. The fully automated process provides a recorded whole slide scan, meaning no re-scans and eliminating redundant work.



Vectra Polaris Automated Quantitative Pathology Imaging System

Our Proprietary Reagents

CODEX Reagents

- *CODEX Antibodies:* We offer a rapidly growing menu of validated antibody content for use with CODEX. Today, our menu includes 61 unique antibodies of which 23 are validated for use with human FFPE tissue, 23 validated for use with human fresh frozen tissue and 25 validated for use with mouse fresh frozen tissue.
- *CODEX Antibody Conjugation Kit*: We offer an antibody conjugation kit that allows customers to label their own proprietary antibodies of interest and modify them for use with CODEX. The antibody conjugation kit can be used to add antibodies to existing content or develop entirely new content for new applications.
- *CODEX Assay Kit***:** We provide the full suite of additional proprietary buffers and reagents needed as part of the full CODEX workflow.

Phenoptics Reagents

We offer a number of proprietary reagents that are required for the use of our platforms and are a key part of our overall solution for our customers. These reagents include our Opal Predesigned Panels, Tyramide signal amplification ("TSA") reagents and Opal kits.

- *Opal Predesigned Panels:* Our Opal MOTiF Antibody Panel Kits are an offering that can be used by the Vectra Polaris Automated Quantitative Pathology Imaging System and offers pre-optimized, ready-to-use primary and secondary antibody panels. Containing the six most clinically relevant biomarkers on lung cancer and melanoma, these panels are tailored for translational immuno-oncology research, offering speed and simplicity. These panels offer a fully validated plug-and-play mIF staining protocol that is very flexible, offering adjustability of the signal intensity strength for each sample's unique biomarker expression levels.
- *TSA Reagents:* Our TSA reagents are used for the detection and amplification of signals in IHC, immunofluorescence (IF) or in situ hybridization (ISH) protocol. For this technique to be successful, whether used as part of our Phenoptics multiplex IHC platform or other detection system, protocol optimization is critical.
- *Opal Kits:* Through our Opal Multiplex IHC kits, we offer multiplex results accessible to anyone who works with standard immunohistochemistry. Unlike other offerings in the market, researchers using our Opal offering can select antibodies for simultaneous mIF detection based on performance, rather than species, offering greater insight to our customers for their research. These kits are optimized for reliable spectral unmixing and simultaneous measurement of three to eight protein targets and a nuclear stain that make them more reliable than other products in the market. Through the use of our Opal kits, researchers are able to gain more information from precious and scarce samples, while identifying multiple cell phenotypes and retaining spatial and morphological context, often lost with bulk measurements and flow cytometry. We believe that by using our proprietary

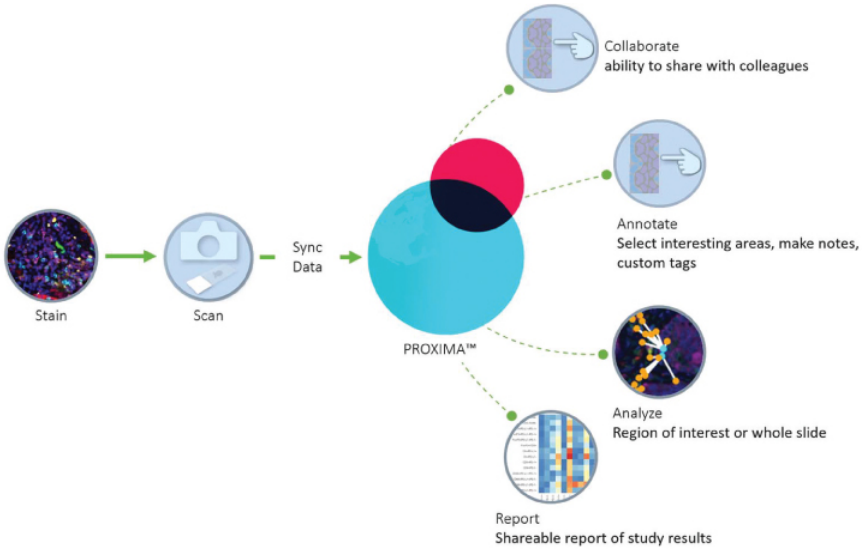
Opal kits, researchers can be confident in the information they are receiving and viewing, all while preserving the tissue for further study.

Our Software Services

We offer a number of different software options for our solutions to provide customers with the flexibility and ability to perform their desired work.

Proxima

- Proxima is a cloud-based platform designed to store, analyze and share spatial data. Tissue images generated by our CODEX and Phenoptics platforms can be easily and quickly uploaded in Proxima for storage, sharing and analysis. Proxima is designed to not only perform rapid cloud-based analysis but also integrates with our desktop tissue analysis software for those customers preferring local analysis with our inForm, Phenochart, and phenoptrReports platforms. The instant and distributed access of experimental results and the ability to collaborate globally through Proxima improves our customer's productivity, ongoing use of our platforms and provides a growing and recurring revenue stream. Furthermore, using application programming interface (API), Proxima can integrate with third party or user developed data analysis solutions. This provides infinite flexibility in the number of data analysis solutions the end user can chose from to meet their application needs.



Analysis Software

- *inForm Tissue:* A patented automated image analysis software package for accurately visualizing and quantifying biomarkers in tissue sections. Our software can be tailored to enable biomarker analysis in both solid tissues and TMAs from H&E, multiplexed IHC, and multiplexed immunofluorescence data. The automated, trainable algorithms permit detection, cell and tissue segmentation and identification of multiple markers within a sample. Once trained, inForm will locate and analyze user-specified regions automatically across an entire image or multiple images. Large numbers of images can be rapidly batch processed, allowing analysis that might have taken days to be done in a matter of minutes.
- *phenoptr & phenoptrReports:* Additional software to enhance the experience with our platforms. Phenoptr provides functions that consolidate and analyze output tables created by inForm software, while phenoptrReports generates shareable reports and visualizations based on the phenoptr output in an intuitive front-end GUI.

Our Biopharma Services

Our Contract Research Services ("CRS") laboratory enables biopharma clients to access the Phenoptics platform in a fee-for-service model to support the discovery and validation of predictive biomarkers to elucidate drug mechanism of action, better understand the underlying biology of disease in translational research studies and perform patient stratification and selection. The services we offer span the entire Phenoptics workflow and include sample preparation, tissue staining, tissue imaging, image analysis pathological review and reporting. Our CRS lab leverages tissue autostainers, the Vectra Polaris and our proprietary software to provide automation across the entire workflow. Our strategic focus is partnering with top biopharma companies on clinical trials and retrospective and prospective clinical studies. Ongoing expansion of this business and progression of our partnerships to later stage clinical trials may ultimately lead to companion diagnostic partnerships with these top biopharma companies.

Suppliers and Manufacturing

We outsource the manufacturing and distribution of our instruments and reagents. We use one contract manufacturer to produce our Phenoptics instruments, another to produce our Codex instruments, and a third to produce all reagent kits. The manufacturers procure the majority of materials needed for the finished good production from many different suppliers, with some of those suppliers located in the US and others located outside the U.S. See "Risks Related to Our Business and Strategy — Our third party manufacturers are dependent upon third party suppliers, including single source suppliers, making us vulnerable to supply shortages and price fluctuations, which could harm our business."

Distribution to customers generally occurs from the manufacturing location. We manufacture one sub-assembly related to the Phenoptics instruments in our Marlborough, MA facility. Inventory is generally held at the contract manufacturer locations or at a third-party warehouse in Massachusetts.

Employees

As of December 31, 2020, we had 169 employees, including 47 in research and development, 67 in sales, marketing, support and business development, 35 in general and administrative and 20 in contract research, manufacturing and field service support. None of our United States employees are represented by a labor union or covered under a collective bargaining agreement and we consider our relationship with our employees to be positive.

Facilities

Our corporate headquarters, research and development facilities and manufacturing and distribution centers are located in Marlborough, Massachusetts and Menlo Park, California, where we lease approximately 25,537 and 9,326 square feet of space, respectively, under leases expiring on October 31, 2026 and July 31, 2026, respectively.

We do not own any real property and believe that our current facilities, together with our global headquarters and research and development center, are sufficient to meet our ongoing needs and that, if we require additional space, we will be able to obtain additional facilities on commercially reasonable terms.

Competition

The life sciences market is highly competitive. There are other companies, both established and early-stage, that have indicated that they are designing, manufacturing and marketing products for, among other things, tissue analysis, single-cell analysis and spatial analysis. These companies include 10x Genomics, Nanostring Technologies and Fluidigm, each of which has products that compete to varying degrees with some but not all of our product solutions, as well as a number of other emerging and established companies. Some of these companies may have substantially greater financial and other resources than us, including larger research and development staff or more established marketing and sales forces. Other competitors are in the process of developing novel technologies for the life sciences market which may lead to products that rival or replace our products.

However, we believe we are substantially differentiated from our competitors for many reasons, including our position as a leader in a large and growing market, proprietary technologies, rigorous product development processes, scalable infrastructure and positive customer experience. We believe our customers favor our products and company because of these differentiators.

For further discussion of the risks we face relating to competition, see the section titled "*Risk Factors — Risks Related to our Business and Industry — Our market is highly competitive, and if we cannot compete successfully with our competitors, we may be unable to increase or sustain our revenue, or achieve and sustain profitability*".

Government Regulation

We do not currently offer any products or services intended to provide clinical diagnostic or health assessment information in relation to individual patients, for use by those patients or their healthcare providers in connection with treatment.

We offer technology, products, and services directly to our customers or on a contractual basis to a broad range of customers in the life sciences industry. Our customers may themselves be directly regulated by the U.S. Food and Drug Administration ("FDA"), the Centers for Medicare & Medicaid Services under the Clinical Laboratory Improvement Amendments ("CLIA"), or similar foreign or state regulatory authorities.

We market certain of our products under the FDA exemptions applicable to "Research Use Only" ("RUO") in vitro diagnostic ("IVD") products. To qualify for this exemption from the otherwise applicable FDA medical device requirements, IVDs must either themselves be in the laboratory research stage of development; or be instruments, systems, or reagents that are labeled for RUO and intended for use in the conduct of nonclinical laboratory research with goals other than the development of a commercial IVD product, i.e., these products are used to carry out research and are not themselves the object of the research. To make clear that these products are exclusively for research purposes, the FDA requires them to include labeling that is prominently placed to state: "For Research Use Only. Not for use in diagnostic procedures". RUO products include those intended for use in discovering and developing medical knowledge related to human disease and conditions. For example, instruments and reagents intended for use in research attempting to isolate a gene linked with a particular disease may be labeled for RUO when such instruments and reagents are not intended to produce results for clinical use. FDA guidance describes the agency's position on RUOs, including labeling and distribution expectations to remain consistent with RUO status. FDA has advised that it will evaluate the totality of the circumstances to determine if it agrees a product is RUO.

In addition, customers may impose contractual requirements relating to, or we may otherwise determine that it is commercially beneficial for us to voluntarily follow, certain regulatory and industry standards such as FDA good manufacturing practices and International Standards Organization (ISO) quality or other standards.

In the future we may pursue or play a role in the development of "companion diagnostics", or perform clinical testing using companion diagnostics. A companion diagnostic is a medical device, often an in vitro diagnostic device, which provides information that is essential for the safe and effective use of a corresponding drug or biological product. The test helps a health care professional determine whether a particular therapeutic product's benefits to patients will outweigh any potential serious side effects or risks. Companion diagnostics would be subject to a much more significant degree of potential FDA and CMS/CLIA and state laboratory regulation than our current product and service offerings.

We are in the process of pursuing certification under CLIA.

CLIA establishes rigorous quality standards for all laboratories that perform testing on specimens derived from humans for the purpose of providing information for the diagnosis, prevention or treatment of disease, or the impairment of, or assessment of health. Clinical laboratories must obtain a CLIA certificate based on the complexity of testing performed at the laboratory, such as a Certificate of Compliance for high-complexity testing. CLIA also mandates compliance with various operational, personnel, facilities administration, quality and proficiency requirements, intended to ensure that their clinical laboratory testing services are accurate, reliable and timely. Compliance is subject to verification through inspections and audits.

CLIA provides that a state may adopt laboratory regulations that are more stringent than those under federal law, and a number of states have implemented their own more stringent laboratory regulatory requirements. Several states additionally require the licensure of out-of-state laboratories that accept specimens from those states.

If a clinical laboratory is found to be out of compliance with CLIA certification or a state license or permit, the applicable regulatory agency may, among other things, suspend, restrict or revoke the certification, accreditation, license or permit to operate the clinical laboratory, assess civil monetary penalties and impose specific corrective action plans, among other sanctions.

Intellectual Property

Protection of our intellectual property is fundamental to the long-term success of our business. We believe that our continued success depends in large part on our proprietary technologies, the skills of our employees, and the ability of our employees to continue to innovate and incorporate advances into our products and services. We regard our services and our products, including our reagents, our instruments, and our developed software, as proprietary.

We rely primarily on a combination of patent, copyright, trademark, and trade secret laws, as well as contractual provisions with employees and third parties, to establish and protect our intellectual property rights. Our patent strategy is to pursue broad protection for key technologies, supplemented by additional patent filings covering conceptual methods, specific aspects of current and proposed products, and forward-looking applications and technological developments. We also engage in strategic analysis of our owned and licensed patent assets, and pursue additional patent claims from our existing portfolio that may provide us with market advantages. We do not rely heavily on trade secret protection, but do maintain a certain amount of in-house know-how that is not disclosed publicly.

We provide products to customers and commercial and academic collaborators pursuant to agreements with non-disclosure terms and other conditions that impose restrictions on use and disclosure. We further make use of contractual obligations that require our employees, consultants and contractors with access to our proprietary information to execute nondisclosure, non-competition and assignment of intellectual property agreements, to preserve our intellectual property rights. We generally control access to our proprietary and confidential information through the use of internal and external controls that are subject to periodic review.

Our key tissue labeling technology CODEX originated in the laboratory of Professor Garry P. Nolan at Stanford, who is a board member. Two families of patents covering this technology are exclusively licensed from Stanford.

The first patent family generally covers the “CODEX 1” labeling technology in which an antibody conjugated to an oligonucleotide barcode binds to a target in a tissue sample, and extension of a primer hybridized to the barcode generates a molecular reporter that emits a detectable fluorescent signal. The patent family covering the CODEX 1 technology includes patents directed to compositions generated by use of the CODEX 1 technology as well as methods of using the CODEX 1 technology. Patents directed to the methods of using the CODEX 1 technology include U.S. patents (expiring in 2034-2036) and European patents (expiring in 2035) in Germany, France, United Kingdom and Sweden. Patent directed to the compositions generated by use of the CODEX 1 technology include a U.S. patent expiring in 2034. The second patent family generally covers the “CODEX 2” labeling technology in which an antibody conjugated to an oligonucleotide binds to a target in a tissue sample, and a second oligonucleotide conjugated to a dye hybridizes to the first oligonucleotide to generate a fluorescent molecular reporter. The patent family covering the CODEX2 technology includes a U.S. patent directed to methods of using the CODEX 2 technology, which expires in 2037.

Our key tissue imaging technology Phenoptics® originated at Cambridge Research later acquired by Caliper Life Sciences, Inc. which was subsequently acquired by PKI. We purchased key patent assets covering this technology from PKI, Cambridge Research and Caliper Life Sciences, Inc., and also licensed certain supplemental patents from PKI, Cambridge Research and VisEn Medical Inc. Some of the supplemental patents are exclusively licensed and others are non-exclusively licensed.

The Phenoptics® technology is embodied in the Mantra 2 Quantitative Pathology Workstation, the Vectra 3 Automated Quantitative Pathology Imaging System, and the Vectra Polaris Automated Quantitative Pathology Imaging System, and in the *inForm Tissue* software that is supplied as part of these systems and is also available independently, or the Phenoptics® products. Each of these systems is a complex combination of imaging components, sample and reagent handling components, and proprietary software. Components of these systems and software that are protected by specific issued U.S. and foreign utility patents include, as of February 1, 2021:

- software that performs classification of cells and other components of biological tissues and is protected by four owned U.S. patents expected to expire between 2026 and 2028, and owned patents in China, India and Europe expected to expire in 2026;
- systems (including sample handling components) and software that performs dilute eosin staining and imaging of tissue samples and are protected by one owned U.S. patent expected to expire in 2032, and owned patents in Canada, Japan and Europe expected to expire in 2030;
- imaging components and software that perform whole slide imaging of tissue samples and registration of multispectral whole-slide images and are protected by our owned U.S. patent expected to expire in 2034, and also by our owned patents in China and Europe expected to expire in 2034;
- sample- and reagent-handling components, hardware control components, and software that performs pure spectrum determination for spectral unmixing of complex multispectral tissue images and are protected by one owned U.S. patent expected to expire in 2036, and also by owned patents in China and Europe expected to expire in 2034;
- imaging components and software that performs RNA detection in tissue samples and are protected by an owned U.S. patent expected to expire in 2032;
- software that performs real-time spectral unmixing of large multispectral images and is protected by two owned U.S. patents expected to expire between 2030 and 2031;
- imaging components, hardware control components, and software that performs dynamic, spectrally-dependent adjustment of the imaging components for multispectral image acquisition and are protected by one owned U.S. patent expected to expire in 2030 and one owned European patent expected to expire in 2027;
- software that identifies nuclear and non-nuclear regions in a tissue sample stained with two or more counterstains and is protected by one owned U.S. patent expected to expire in 2034;
- imaging components and software that performs spectral unmixing operations on multispectral tissue images to generate component images and are protected by six U.S. patents expected to expire between 2023 and 2026, and four patents in China and Europe expected to expire in 2023, all exclusively in-licensed from Cambridge Research; and
- software that decomposes multispectral images of tissue samples stained with an immunohistochemical stain, eosin, and a counterstain, determines a region of interest, and quantifies the immunohistochemical stain in the region of interest and is protected by one U.S. patent exclusively in-licensed from Cambridge Research expected to expire in 2029.

We also own patent assets (issued U.S. and foreign patents and pending patent applications) covering technologies developed internally, in particular relating to improvements in analytical workflows and small sample processing that are tied to anticipated to provide protection for products in development. Many of these applications are not yet open to public inspection.

As of February 1, 2021, our owned patent assets included approximately 16 issued U.S. patents, eight pending U.S. patent applications (including three U.S. provisional patent applications), 51 granted patents in foreign jurisdictions (including Austria, Canada, China, the European Patent Office, or EPO, France, Germany, Ireland, India, Italy, Japan, Switzerland, and the United Kingdom), three pending patent applications at the EPO and eight pending Patent Cooperation Treaty applications.

The subject matter covered by our owned patents and patent applications includes systems and methods for sample analysis and classification, methods for spectral unmixing of spectrally dense

fluorescence signals, modules and systems for performing dynamic optical correction, methods for training machine classifiers, methods and systems for RNA detection, methods for visualizing and enhancing visualization of samples, methods for visualizing compartments within cells, systems and methods for whole-slide imaging, systems and methods for multiple-image registration, systems and methods for extraction of pure spectra from sample images, methods for specialized allocation of fluorescence bands within a detection window, systems for low-volume flow cell-based sample analysis, methods for enzyme-mediated amplification of detection signals, methods for detecting receptor-coding nucleic acid segments, methods for selective labeling of targets in samples, compositions and methods for selectively targeting certain analytes, and imaging methods using nanobody probes.

Excluding any potential patent term extension, our currently issued owned patents are expected to expire between 2026 and 2036. See "— Licenses" for more information regarding the agreements under which certain of our patents are licensed.

We also seek to protect our brands through registration of trademark rights. As of January 25, 2021, we owned approximately 10 registered trademarks in the United States, 14 registered foreign trademarks, and nine pending U.S. trademark applications. Our registered trademarks and pending trademark applications include trademarks and pending trademark applications for The Spatial Biology Company, Motif, Akoya Biosciences, CODEX, Opal, Vectra, Proxima, Your Spatial Biology Solution, The Spatial Biology Platform, The Spatial Biology Solution, Phenocycler, Phenocode, Phenoscanner, and Phenoimager, and our logos for Akoya Biosciences, CODEX, and inForm.

To supplement protection of our brand, we have also registered several internet domain names.

See "Risk Factors — Risks Related to Intellectual Property" for more information regarding the risks relating to intellectual property.

Licenses

Stanford University

In November 2015, we entered into an exclusive (equity) agreement with Stanford, pursuant to which Stanford granted us an exclusive, sublicensable (subject to certain requirements), worldwide license under certain patent rights owned by Stanford relating to oligonucleotide-based biological sample labeling to make, use and sell products and services that are covered by such patent rights, or the Stanford Licensed Products, in all fields of use. The patents are related to oligonucleotide-based labeling technology, and we refer to this technology as the CODEX 1 technology.

In November 2016, the agreement was amended to include an exclusive, sublicensable (subject to certain requirements), worldwide license granted to us by Stanford under additional patent rights owned by Stanford relating to oligonucleotide-based biological sample labeling to make, use, and sell products and services that are covered by such patent rights, in all fields of use (such products and services are also included in the Stanford Licensed Products). We refer to the technology disclosed in the additional patents as the CODEX 2 technology. We are obligated to use commercially reasonable efforts to develop, manufacture, sell and develop markets for Stanford Licensed Products, including with respect to accomplishing specific goals with specific deadlines set forth in the agreement.

We made one-time upfront payments of $50,000 in connection with the initial execution of the agreement and $13,000 in connection with executing the amendment. We also granted to Stanford 213,333 shares of our non-voting common stock, representing at least 2% of our capitalization. We are also required to pay Stanford annual license maintenance fees in the mid-five figures. We further agreed to make one-time milestone payments (i) at issuance of the first licensed patent included in the original 2015 agreement, (ii) at issuance of the first licensed additional patent included in the 2016 amendment to the agreement, (iii) at the issuance of the first licensed additional patent included in the 2021 amendment to the agreement, (iv) upon the first sale of a Stanford Licensed Product covered by the additional licensed patents included in the 2021 amendment to the agreement and (v) upon the sale of more than $500,000 of Stanford Licensed Products in a calendar year. The aggregate amount of these milestone payments is $120,000. We also agreed to make a payment of $10,000 as an execution fee for the 2021 amendment to the agreement. We are also

obligated to pay Stanford a low single-digit percentage royalty on net sales of Stanford Licensed Products and a portion of any of our sublicensing income.

Subject to Stanford's approval, we control the prosecution and maintenance of the licensed patents and, if we are developing Stanford Licensed Products, have the first right to institute a suit, or defend any declaratory judgment action, related to third-party infringement of the licensed patents.

The agreement will continue until the expiration, revocation, invalidation or abandonment of the last patent or patent application that is licensed to us, unless terminated earlier in accordance with its terms. The last licensed patent is set to expire in 2036. We may terminate the agreement at any time by providing advance written notice of at least 30 days. Stanford may terminate the agreement if we violate or fail to perform any material terms thereof or for our failure to achieve certain milestones or use commercially reasonable efforts to develop and commercialize the Stanford Licensed Products, and fail to cure such violation or failure within 30 days of written notice from Stanford.

PerkinElmer Heath Sciences, Inc., Cambridge Research & Instrumentation, Inc., and VisEn Medical Inc.

In September 2018, we entered into a license and royalty agreement with PKI, Cambridge Research, and VisEn Medical Inc., or, collectively, the Licensor, pursuant to which the Licensor granted us an exclusive, sublicensable (subject to certain conditions), worldwide license within certain fields of use under certain patent rights and know-how owned by the Licensor to make, use, and sell products within such fields of use, as well as a similar, non-exclusive license under certain other patent rights. The licensed patents relate to methods and systems for analyzing biological samples, and in particular, slide-mounted tissue samples.

We agreed to pay the Licensor royalties ranging from a high single-digit to low single-digit percentage on net sales of products covered by either license on a decreasing schedule that ends upon the expiration of the last valid claim of the licensed patents, at which point the agreement shall terminate and our rights and licenses thereunder shall survive on a fully-paid up, royalty-free basis. The last licensed patent is set to expire in 2036. Neither we nor the Licensor has the right to terminate the agreement prior to such expiration.

The Licensor has the first right to control the prosecution, maintenance and defense of the licensed patents. We have the first right to enforce any exclusively licensed patent with respect to third-party infringement occurring solely within our licensed field of use, and Licensor has the first right to enforce the license patents with respect to any other third-party infringement. If any exclusively licensed patent is believed to be infringed by the development, manufacture, use, offer for sale, sale or importation of a product by the third party solely inside field of use worldwide, the Licensor has the first right to institute, prosecute and control any action or proceeding with respect to such infringement of such patent.

University of Washington

In June 2018, we entered into an exclusive patent license agreement with the University of Washington, or the University, pursuant to which the University granted us an exclusive, sublicensable (subject to certain conditions), worldwide license in certain fields of use under certain patent rights owned by the University relating to technology for molecular profiling of cells and tissue specimens, to make, use and sell products that are covered by such patent rights, or the Washington Licensed Products. The licensed patents are related to the detection of biomolecules, particularly proteins and nucleic acids, in biological samples.

We made an upfront payment of $15,000 following execution of the agreement, and we are obligated to pay the University a low single-digit percentage running royalty on net sales of Washington Licensed Products, subject to certain minimum annual royalty payments and potential reductions based on a royalty-stacking allowance for certain third-party rights that are required to be obtained to make, use, sell or import Washington Licensed Products. We are also obligated to make cumulative one-time payments to the University of $100,000 upon the achievement of certain commercial milestones, as well as sharing a portion of any of our non-royalty sublicensing income.

We are obligated to use commercially reasonable efforts to commercialize the inventions covered by the licensed patent rights and to make and sell Washington Licensed Products as soon as practicable and maximize sales thereof, including with respect to accomplishing specific goals with specific deadlines set forth in the agreement.

The University must conduct the prosecution of the licensed patents per our instructions and at our expense, subject to certain exceptions. We have the first right to defend and enforce the licensed patents at our expense.

The agreement shall expire when all licensed patent rights have terminated, unless terminated earlier in accordance with the terms thereof. The last licensed patent is set to expire in 2032. We may terminate the agreement at any time by providing advance written notice of at least 60 days. The University may terminate the agreement if we violate or fail to perform any material term thereof and fail to cure such violation or failure within 60 days of written notice from the University. In addition, the University may terminate the exclusive license agreement upon 10 days' prior written notice upon certain insolvency-related events involving us or should we challenge the validity of the licensed patents.

Legal Proceedings

From time to time, we may become involved in legal proceedings or be subject to claims arising in the ordinary course of our business. We are not presently a party to any legal proceedings that we believe, if determined adversely to us, would have a material adverse effect on our business, financial condition, operating results, or cash flows. Regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources, and other factors.

MANAGEMENT

Executive Officers and Directors

Set forth below is certain biographical and other information regarding our directors and our executive officers as of December 31, 2020.

Name	Age	Position(s)
Executive Officers		
Brian McKelligon	52	President and Chief Executive Officer and Director
Joseph Driscoll	56	Chief Financial Officer
Niro Ramachandran, Ph.D.	46	Chief Business Officer
Frederic Pla, Ph.D.	62	Chief Operating Officer
Non-Employee Directors		
Garry Nolan, Ph.D.	59	Director
Thomas Raffin, M.D.	73	Director
Thomas P. Schnettler	64	Director
Robert Shepler	64	Director
Matt Winkler, Ph.D.	68	Director

The following are brief biographies describing the backgrounds of our executive officers and directors.

Executive Officers

Brian McKelligon. Mr. McKelligon has served as our Chief Executive Officer and on our board of directors since July 2017. Prior to joining Akoya, Mr. McKelligon led corporate and business development at Cellular Dynamics International, a privately-held life sciences company acquired by FUJIFilm, with a focus on the development and partnering of cell therapy programs, from April 2016 to June 2017. Prior to that, Mr. McKelligon was the Vice President of Sales and Support at 10X Genomics, Inc. from April 2015 to April 2016, and the Vice President of Sales and Support at Thermo Fisher and Life Technologies (through their acquisition of Ion Torrent) from January 2010 to March 2015. Mr. McKelligon received a B.S. in combined sciences from Santa Clara University.

We believe that Mr. McKelligon is qualified to serve on our board of directors because of his experience as our Chief Executive Officer, industry knowledge and previous experience.

Joseph Driscoll. Mr. Driscoll has served as our Chief Financial Officer since March 2019. From April 2017 to March 2019, Mr. Driscoll was the Chief Financial Officer of Quanterix Corporation (Nasdaq:QTRX), a life sciences company that develops ultra-sensitive detection systems for use in research and in-vitro diagnostic. Prior to that, Mr. Driscoll served as Chief Financial Officer of Verscend Technologies, Inc., a healthcare data analytics company, from October 2016 to April 2017. From March 2012 to October 2016, he served as the Chief Financial Officer, Senior Vice President and Treasurer of PC Connection, Inc. (Nasdaq:CNXN), an IT solutions provider, where he also served as the company's Principal Financial and Accounting Officer. From September 2006 to March 2012, Mr. Driscoll served as the Chief Financial Officer of Summer Infant, Inc. (Nasdaq:SUMR), a consumer products company, where he also served as the company's Treasurer and Principal Accounting Officer. Mr. Driscoll is a licensed Certified Public Accountant, and holds a B.S. in Accounting from Boston College.

Niro Ramachandran, Ph.D. Dr. Ramachandran has served as our Chief Business Officer since August 2020. Prior to joining our company, Dr. Ramachandran served as Vice President of the spatial biology business unit at Nanostring Technologies, Inc. (Nasdaq:NSTG), a life sciences company that specializes in development of cancer diagnostics tools, from July 2014 to July 2020. Prior to that, Dr. Ramachandran led product development for the protein business unit at Life Technologies (which was acquired by Thermo Fisher) from August 2008 to July 2014. Dr. Ramachandran received his Hon. BSc. in Biochemistry from University of Toronto, and Ph.D. from University of Windsor. He completed his post doctorate work at the Harvard Institute of Proteomics, Harvard University.

Frederic Pla,Ph.D. Dr. Pla has served as our Chief Operating Officer since March 2021. Prior to joining our company, Dr. Pla served as Chief Operating Officer at the Parker Institute for Cancer Immunotherapy from April 2020 to March 2021. Prior to that, Dr. Pla was the Chief Operating Officer of Genomic Health, a global oncology diagnostics company until its acquisition by Exact Sciences in November 2020. Before joining Genomic Health in 2014, Dr. Pla was Vice President, Corporate Business Development, for Life Technologies, a $4 billion, 10,000-employee, San Diego-based global life sciences business, until its acquisition by Thermo Fisher in 2014. Dr. Pla joined Life Technologies in 2005 as Vice President and General Manager of the Diagnostics Business, responsible for product development and manufacturing facilities in the U.S., UK, and China. Dr. Pla holds 23 U.S. patents, a Ph.D. in acoustics from the Pennsylvania State University, a Master's degree from the University of Southampton, UK, and an engineering degree from the University of Technology of Compiegne, France.

Non-Employee Directors

Garry Nolan, Ph.D. Dr. Nolan co-founded Akoya Biosciences, Inc. in 2015 and has served on our board of directors since November 2015. Dr. Nolan is the Rachford and Carlota A. Harris Professor in the Department of Microbiology and Immunology at Stanford University School of Medicine. He trained with Leonard Herzenberg (for his Ph.D.) and Nobelist Dr. David Baltimore (for postdoctoral work). He holds a B.S. in Genetics from Cornell University and a Ph.D. from Stanford University in Genetics. He has published over 300 research articles and is the holder of over 40 US patents and has been honored as one of the top 25 inventors at Stanford University. Dr. Nolan was the founder and has served on the boards of directors of several biotechnology companies. Dr. Nolan is the first recipient of the Teal Innovator Award (2012) from the Department of Defense and has been honored with multiple awards including Nature Publishing "Outstanding Research Achievement", Stohlman Scholar from the Leukemia and Lymphoma Society and Burroughs Wellcome Fund New Investigator Award.

We believe that Dr. Nolan is qualified to serve on our board of directors because of his experience as our co-founder, previous experience as a co-founder of other life sciences companies, industry knowledge and extensive academic training.

Thomas Raffin, M.D. Dr. Raffin has served as a member of our board of directors since November 2015. He initially joined the NewLink Board in 2000. Dr. Raffin has spent 25 years on the faculty at Stanford University School of Medicine, where he was the Colleen and Robert Haas Professor of Medicine and Biomedical Ethics and Chief of the Division of Pulmonary and Critical Care Medicine. Over the past two decades, Dr. Raffin has worked extensively in the healthcare and medical device business sectors and was an advisor to Cell Therapeutics Inc. from 1993 to 1997, Broncus Technologies from 1997 to 2004, iMedica from 1998 to 2002, and Inhale Technologies from 1998 to 2001. He co-founded Rigel Pharmaceuticals, a publicly traded company (Nasdaq: RIGL), in 1996. He is currently on the board of Lumos Pharma. In 2001, he co-founded Telegraph Hill Partners, a San Francisco life sciences private equity firm as a General Partner. Dr. Raffin has been a director of the following Telegraph Hill Partners private portfolio companies: AngioScore, Inc., Confirma, Inc., Freedom Innovations, LDR Holding Corporation, PneumRx, Inc. and InvisALERT Solutions. Dr. Raffin received a B.A. from Stanford University and an M.D. from Stanford University School of Medicine and did his medical residency at the Peter Bent Brigham Hospital (now Brigham and Women's Hospital) in Boston, MA.

We believe Dr. Raffin is qualified to serve on our board of directors because of his extensive experience in the biotechnology and healthcare industries, his service on a number of boards which provides an important perspective on operations and corporate governance matters, and his experience in the practice of medicine and academics.

Thomas P. Schnettler Mr. Schnettler has served as a member of our board of directors since September 2019. Mr. Schnettler is vice chairman of Piper Sandler Companies, a managing director in the merchant banking group and co-CEO of PSC Capital Partners LLC, the registered investment adviser to the Piper Sandler merchant banking funds. Mr. Schnettler has held a number of leadership roles at Piper Sandler, including president and chief operating officer and chief financial officer. Earlier in his career, he co-founded and led the healthcare investment banking group. Mr. Schnettler has served on the board of, or held board observation responsibility for, Torax Medical, Sapphire Digital, Sport Ngin, Xenex Disinfection

Services, Elligo Health Research and Paragon 28. Mr. Schnettler graduated from Saint John's University in Collegeville, Minnesota and holds a Juris Doctor degree from Harvard Law School.

We believe that Mr. Schnettler is qualified to serve on our board of directors because of his experiences in finance and the healthcare sector, including serving as an executive at an investment bank.

Robert Shepler. Mr. Shepler has served as a member of our board of directors since November 2015. Mr. Shepler was a founder and served as a Managing Director of Telegraph Hill Partners, a growth equity/ late-stage venture capital investment firm focused exclusively on healthcare related companies, since its inception in 2001 until August 2020 when he became Partner Emeritus. Prior to Telegraph Hill Partners, Mr. Shepler was a principal in the investment firm of Mackowski & Shepler and an officer in the investment banking division of Merrill Lynch & Co. In addition to Akoya, Mr. Shepler currently serves on the board of directors of Agena Biosciences, Inc. and Dynex Technologies, Inc. Previously, Mr. Shepler has been a director on the boards of LDR Holding Corporation, Applied Precision, Inc., SAGE Labs, Inc., Vidacare Corporation, Endoscopic Technologies, Inc., AcroMetrix, Inc., Aurora Discovery, Inc., Kinetikos Medical, Inc., RareCyte, Inc., ReloAction, Inc., Reading Glass Company, Inc., One Body, Inc., Microinterventional Systems, Inc., R.D. Percy & Company, Inc. and was chairman of Genomic Solutions, Inc. (Nasdaq: GNSL). Mr. Shepler received a B.A. from Duke University and an M.B.A. from New York University.

We believe that Mr. Shepler is qualified to serve on our board of directors because of his substantial experience as a venture capitalist and as a director of publicly traded and privately held companies.

Matt Winkler, Ph.D. Dr. Winkler has served on our board or directors since July 2017. Dr. Winkler is the current Chairman and founder of Asuragen. He also founded Mirna Therapeutics and Ambion, Inc. Ambion was acquired in 2006 by Applied Biosystems, now Thermo Fisher Scientific. Dr. Winkler currently serves on the board of directors of "The Breakthrough Institute", "Revive and Restore" and the "Genetic Literacy Project", all from 2017 to present. Dr. Winkler was an Assistant and Associate Professor (1983-1991) in the Department of Zoology at the University of Texas at Austin, where he is also currently a member of several advisory boards. Dr. Winkler received his B.S. in Genetics and a Ph.D. in Zoology from the University of California at Berkeley.

We believe that Dr. Winkler is qualified to serve on our board of directors due to his extensive operational experience with global life sciences companies, and particularly his expertise in business development and corporate strategy.

Election of Officers and Family Relationships

Our executive officers are appointed by, and serve at the discretion of, our board of directors. There are no family relationships among any of our directors or executive officers.

Board Composition

Our Bylaws will provide that our board of directors shall initially consist of six members, and thereafter shall be fixed from time to time by resolution of our board of directors. Currently our board of directors consists of six members: Brian McKelligon, Garry Nolan, Thomas Raffin, Thomas P. Schnettler, Robert Shepler, Matt Winkler.

In accordance with our Certificate of Incorporation, our board of directors will be divided into three classes with staggered three-year terms. At each annual meeting of stockholders after the initial classification, the successors to the directors whose terms will then expire will be elected to serve from the time of election and qualification until the third annual meeting following their election. Our directors will be divided among the three classes as follows:

- the Class I directors will be Garry Nolan and Matthew Winkler, and their terms will expire at the annual meeting of stockholders to be held in 2022;
- the Class II directors will be Brian McKelligon and Thomas Raffin, and their terms will expire at the annual meeting of stockholders to be held in 2023; and
- the Class III directors will be Robert Shepler and Thomas Schnettler, and their terms will expire at the annual meeting of stockholders to be held in 2024.

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.

Director Independence

Our board of directors has determined that, upon closing of this offering, Garry Nolan, Thomas P. Schnettler and Matt Winkler will be independent directors. In making this determination, our board of directors applied the standards set forth in the rules of Nasdaq and in Rule 10A-3 under the Exchange Act. Our board of directors considered all relevant facts and circumstances known to it in evaluating the independence of these directors, including their current and historical employment, any compensation we have given to them, any transactions we have with them, their beneficial ownership of our capital stock, their ability to exert control over us, all other material relationships they have had with us and the same facts with respect to their immediate families. We intend to rely on a phase-in period under these rules applicable to newly public companies, which will permit fewer than a majority of our board of directors to be independent on the listing date of our common stock, provided we satisfy such requirement within one year of the date of listing. Accordingly, we intend to have a majority of our board of directors consist of independent directors within one year of the date our common stock is listed on The Nasdaq Global Market.

Although there is no specific policy regarding diversity in identifying director nominees, both the Nominating and Corporate Governance Committee and the board of directors seek the talents and backgrounds that would be most helpful to us in selecting director nominees. In particular, the Nominating and Corporate Governance Committee, when recommending director candidates to our board of directors for nomination, may consider whether a director candidate, if elected, assists in achieving a mix of board of directors members that represents a diversity of background and experience.

Board Leadership Structure

Our board of directors is led by our Chairman, Robert Shepler. Our board of directors recognizes that one of its key responsibilities is to evaluate and determine its optimal leadership structure so as to provide effective oversight of management. Our Bylaws and corporate governance guidelines will provide our board of directors with flexibility to combine or separate the positions of Chair of the Board and Chief Executive Officer. Our board of directors currently believes that our existing leadership structure is effective, provides the appropriate balance of authority between independent and non-independent directors, and achieves the optimal governance model for us and for our stockholders.

Board Oversight of Risk

Although management is responsible for the day to day management of the risks our company faces, our board of directors and its committees take an active role in overseeing management of our risks and have the ultimate responsibility for the oversight of risk management. The board of directors regularly reviews information regarding our operational, financial, legal and strategic risks. Specifically, senior management attends quarterly meetings of the board of directors, provides presentations on operations including significant risks, and is available to address any questions or concerns raised by our board of directors.

In addition, we expect that our three committees will assist the board of directors in fulfilling its oversight responsibilities regarding risk. The Audit Committee will coordinate the board of director’s oversight of our internal control over financial reporting, disclosure controls and procedures, related party transactions and code of conduct and corporate governance guidelines and management will regularly report to the Audit Committee on these areas. The Compensation Committee will assist the board of directors in fulfilling its oversight responsibilities with respect to the management of risks arising from our compensation policies and programs as well as succession planning as it relates to our Chief Executive Officer. The Nominating and Corporate Governance Committee will assist the board of directors in fulfilling its oversight responsibilities with respect to the management of risks associated with board organization, membership and structure, succession planning for our directors and corporate governance. When any of the committees receives a report related to material risk oversight, the chair of the relevant committee will report on the discussion to the full board of directors.

Code of Business Conduct and Ethics

We have adopted a written code of business conduct, that applies to our directors, officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. Upon the closing of this offering, a copy of the code will be posted on the Investor Relations section of our website. If we make any substantive amendments to, or grant any waivers from, the code of business conduct and ethics for any officer or director, we will disclose the nature of such amendment or waiver on our website or in a current report on Form 8-K within four business days of such amendment or waiver.

Board Committees

Our board of directors has established an audit committee, or the Audit Committee, a compensation committee, or the Compensation Committee, and a nominating and corporate governance committee, or the Nominating and Corporate Governance Committee, each of which will operate pursuant to a charter to be adopted by our board of directors and will be effective upon the closing of this offering. Our board of directors may also establish other committees from time to time to assist the board of directors. Effective upon the closing of this offering, the composition and functioning of all of our committees will comply with all applicable requirements of the Sarbanes-Oxley Act, Nasdaq and SEC rules and regulations. Upon our listing on Nasdaq, each committee's charter will be available on our website.

Audit Committee

The members of our Audit Committee are Messrs. Schnettler, Shepler and Winkler, with Mr. Schnettler serving as chair. Our board of directors has determined that each member of the Audit Committee has sufficient knowledge in financial and auditing matters to serve on the Audit Committee. Our board of directors has designated Mr. Schnettler as an "audit committee financial expert," as defined under the applicable rules of the SEC. We intend to rely on the phase-in rules of Rule 10A-3 under the Exchange Act and the Nasdaq rules with respect to the requirement that the audit committee be composed entirely of members of our board of directors who satisfy the standards of independence established for independent directors under the Nasdaq rules and the additional independence standards applicable to audit committee members established pursuant to Rule 10A-3 under the Exchange Act, as determined by our board of directors. Our board of directors has determined that Mr. Winkler meets the independence requirements for audit committees required under Section 10A of the Exchange Act and the applicable Nasdaq rules. The audit committee's responsibilities include:

- appointing, approving the compensation of and assessing the independence of our independent registered public accounting firm;
- pre-approving auditing and permissible non-audit services, and the terms of such services, to be provided by our independent registered public accounting firm;
- reviewing the overall audit plan with our independent registered public accounting firm and members of management responsible for preparing our financial statements;
- reviewing and discussing with management and our independent registered public accounting firm our annual and quarterly financial statements and related disclosures as well as critical accounting policies and practices used by us;
- coordinating the oversight and reviewing the adequacy of our internal control over financial reporting;
- establishing policies and procedures for the receipt and retention of accounting-related complaints and concerns;
- recommending based upon the audit committee's review and discussions with management and our independent registered public accounting firm whether our audited financial statements shall be included in our Annual Report on Form 10-K;
- monitoring the integrity of our financial statements and our compliance with legal and regulatory requirements as they relate to our financial statements and accounting matters;

- preparing the audit committee report required by SEC rules to be included in our annual proxy statement;
- reviewing all related person transactions for potential conflict of interest situations and approving all such transactions; and
- reviewing quarterly earnings releases.

Compensation Committee

The members of our Compensation Committee are Messrs. Raffin, Nolan, Shepler and Winkler, with Mr. Raffin serving as chair. We intend to rely on the phase-in rules of Nasdaq with respect to the requirement that the compensation committee be composed entirely of members of our board of directors who satisfy the standards of independence established for independent directors under the Nasdaq rules, as determined by our board of directors. Our board of directors has determined that each of Messrs. Nolan and Winkler are "independent" as that term is defined in SEC and Nasdaq rules, meets the heightened independence requirements for compensation committee purposes under Section 10C of the Exchange Act and related SEC and Nasdaq rules, and are considered a "non-employee director" under Rule 16b-3 under the Exchange Act. The compensation committee's responsibilities include:

- reviewing and approving our philosophy, policies and plans with respect to the compensation of our chief executive officer;
- making recommendations to our board of directors with respect to the compensation of our chief executive officer and our other executive officers;
- reviewing and assessing the independence of compensation advisors;
- overseeing and administering our equity incentive plans;
- reviewing and making recommendations to our board of directors with respect to director compensation; and
- preparing the Compensation Committee reports required by the SEC, including our "Compensation Discussion and Analysis" disclosure.

Nominating and Corporate Governance Committee

Effective upon the closing of this offering Messrs. Schnettler, Shepler and Winkler will serve on the Nominating and Corporate Governance Committee, which will be chaired by Mr. Schnettler. We intend to rely on the phase-in rules of Nasdaq with respect to the requirement that the nominating and corporate governance committee be composed entirely of members of our board of directors who satisfy the standards of independence established for independent directors under the Nasdaq rules, as determined by our board of directors. Our board of directors has determined that Messrs. Schnettler and Winkler are "independent" as defined in Nasdaq rules. The Nominating and Corporate Governance Committee's responsibilities include:

- developing and recommending to the board of directors criteria for board and committee membership;
- establishing procedures for identifying and evaluating board of director candidates, including nominees recommended by stockholders;
- reviewing the composition of the board of directors to ensure that it is composed of members containing the appropriate skills and expertise to advise us;
- identifying and screening individuals qualified to become members of the board of directors;
- recommending to the board of directors the persons to be nominated for election as directors and to each of the board's committees;
- developing and recommending to the board of directors a code of business conduct and ethics and a set of corporate governance guidelines; and

- overseeing the evaluation of our board of directors and management.

Compensation Committee Interlocks and Insider Participation

None of the members of our Compensation Committee has during the prior fiscal year been one of our officers or employees or had a relationship requiring disclosure under "Certain Relationships and Related Party Transactions." None of our executive officers currently serves, or in the past fiscal year has served, as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving on our board of directors or compensation committee.

EXECUTIVE COMPENSATION

This section discusses the material components of the executive compensation program for our executive officers who are named in the "Summary Compensation Table" below. In 2020, our "named executive officers" and their positions were as follows:

- Brian McKelligon, our Chief Executive Officer;
- Joseph Driscoll, our Chief Financial Officer; and
- Niro Ramachandran, our Chief Business Officer.

This discussion may contain forward-looking statements that are based on our current plans, considerations, expectations and determinations regarding future compensation programs. Actual compensation programs that we adopt following the closing of this offering may differ materially from the currently planned programs summarized in this discussion.

Summary Compensation Table

The following table sets forth information concerning the compensation of our named executive officers for the years ended December 31, 2020 and 2019.

Name and principal position	Year	Salary ($)	Option awards ($)[1]	Non-Equity Incentive Plan Compensation ($)	All other compensation ($)	Total ($)
Brian McKelligon *Chief Executive Officer*	2020	350,000	108,498	57,750	—	516,248
	2019	333,333	49,001	102,000	—	484,334
Joseph Driscoll *Chief Financial Officer*	2020	308,605	66,162	56,012	—	430,779
	2019	237,500	72,541	84,915	—	394,956
Niro Ramachandran *Chief Business Officer*	2020	116,250[2]	67,041	19,181	—	202,472

(1) The amounts disclosed represent the aggregate grant date fair value of stock options granted under our 2015 Equity Incentive Plan during the indicated fiscal year computed in accordance with ASC Topic 718. The assumptions used in calculating the grant date fair value of the stock options are set forth in the notes to our audited consolidated financial statements included elsewhere in this prospectus. These amounts do not reflect the actual economic value that may be realized by the named executive officers.

(2) Amount reported for Mr. Ramachandran represents the prorated portion of his annual base salary of $300,000 earned after commencing his employment with us in August 2020.

Employment arrangements

This section contains a description of the material terms of the employment arrangements with our NEOs. Our NEOs signed an offer letter with us, which provides for at-will employment and sets forth other terms of employment, including the initial base salary, target incentive opportunity, the terms of the initial equity grant and, in the case of Mr. McKelligon and Mr. Driscoll, severance protections upon a qualifying termination. In addition, each of our NEOs executed a form of our standard at-will employment, confidential information, invention assignment and arbitration agreement, which includes a non-solicit of employees covenant during employment and for one year following termination.

Brian McKelligon

On June 28, 2017, we entered into an employment offer letter with Brian McKelligon, who currently serves as our President and Chief Executive Officer. Mr. McKelligon's employment offer letter provides for at-will employment and sets forth his annual base salary, target bonus and initial stock option grants, as well as his eligibility to participate in our benefit plans generally. Mr. McKelligon's current annual base salary is

$350,000 and his annual bonus target is 30% of this annual salary. Mr. McKelligon also is subject to our standard Confidential Information and Invention Assignment Agreement regarding ownership of intellectual property.

Under Mr. McKelligon's employment offer letter, in the event that Mr. McKelligon's employment with us is terminated at any time pursuant to a "constructive termination" or without "cause", then, subject to and contingent upon Mr. McKelligon's execution and delivery of a separation and release agreement, Mr. McKelligon will be entitled to receive payments equal to six months of his then current base salary and continued benefits, payable in accordance with our normal payroll practices.

Pursuant to Mr. McKelligon's employment offer letter, "constructive termination" means (i) without Mr. McKelligon's written consent, a material reduction in Mr. McKelligon's annual salary, objective-based bonus or benefits, other than those part of a management-wide reduction, (ii) any material failure by us to comply with the provisions of Mr. McKelligon's employment offer letter, (iii) any action that results in a material diminution in Mr. McKelligon's title, duties or responsibilities unless such changes are mutually agreed upon, (iv) a failure of a successor-in-interest under a change of control to assume all of the obligations of the company under Mr. McKelligon's employment offer letter, and (v) without Mr. McKelligon's written consent, a requirement of relocation to a location more than 30 miles away from Mr. McKelligon's current home address. In order to establish a "Constructive Termination" for terminating employment, Mr. McKelligon must provide written notice to us of the existence of the condition giving rise to the Constructive Termination and we must be provided with thirty (30) days thereafter to cure the condition to the extent that any of such reasons are susceptible to cure, such satisfaction to be reasonably determined by Mr. McKelligon.

Pursuant to Mr. McKelligon's offer letter, "cause" means (i) any act or omission by Mr. McKelligon which has an adverse effect on our business or on Mr. McKelligon's ability to perform services for us, including, without limitation, the commission of, or a guilty or no contest plea to, any crime (other than ordinary traffic violations), (ii) refusal or failure to perform reasonably assigned duties, serious misconduct, excessive absenteeism, a breach by Mr. McKelligon of his fiduciary duty to us, or an act of fraud or dishonesty in the performance of his duties, (iii) refusal or failure to comply with our policies, or (iv) any breach of Mr. McKelligon's obligations or duties under any written agreement between us and Mr. McKelligon, including, without limitation, McKelligon's employment offer letter.

In addition to the foregoing, in the event of a change in control, Mr. McKelligon will be entitled to receive full acceleration of his unvested stock options and other equity awards.

Joseph Driscoll

On January 28, 2019, we entered into an employment offer letter with Joseph Driscoll, who currently serves as our Chief Financial Officer. Mr. Driscoll's employment offer letter provides for at-will employment and sets forth his annual base salary, target bonus and initial stock option grants, as well as his eligibility to participate in our benefit plans generally. Mr. Driscoll's current annual base salary is $310,326 and his annual target bonus is 33% of his annual salary. Mr. Driscoll also is subject to our standard Confidential Information and Inventions Assignment Agreement regarding ownership of intellectual property.

Under Mr. Driscoll's employment offer letter, in the event that Mr. Driscoll is terminated without cause, Mr. Driscoll will be entitled to receive payments equal to six months of his base salary. In addition to the foregoing, in the event of a change in control and the termination of his employment, Mr. Driscoll will be entitled to receive full acceleration of his unvested stock options.

Niroshan Ramachandran, PhD.

On July 14, 2020, we entered into an employment offer letter with Niroshan Ramachandran, PhD., who currently serves as our Chief Business Officer. Dr. Ramachandran's employment offer letter provides for at-will employment and sets forth his annual base salary, target bonus and initial stock option grants, as well as his eligibility to participate in our benefit plans generally. Dr. Ramachandran's current annual base salary is $300,000 and his annual target bonus is 30% of this annual salary. Dr. Ramachandran also is subject to our standard Confidential Information and Invention Assignment Agreement regarding ownership of intellectual property.

Other elements of compensation

Fiscal year 2020 annual bonus

We provide our executives an opportunity to earn annual cash bonuses to motivate and reward achievements of certain corporate and individual performance goals for each fiscal year. The target bonus, expressed as a percentage of eligible base salary, for Mr. McKelligon, Mr. Driscoll and Dr. Ramachandran was 30%, 33% and 30%, respectively, for fiscal year 2020.

Based on our achievement of net income and revenue targets established by our board of directors for fiscal year 2020, our compensation committee determined that each of Mr. McKelligon's, Mr. Driscoll's and Dr. Ramachandran's bonus amount relating to corporate performance would be paid out at 55%.

Health benefits

We provide customary employee benefits to eligible employees, including to our NEOs, including medical, dental and vision benefits, short-term and long-term disability insurance, basic and supplemental life insurance and basic and supplemental accidental death and dismemberment insurance.

Retirement benefits

We maintain a defined contribution plan (the "401(k) Plan") for all full-time United States employees, including our NEOs. The 401(k) Plan is intended to qualify as a tax-qualified plan under Section 401(a) of the Code. Each participant may contribute between 1% to 100% of such participant's eligible compensation to the 401(k) Plan subject to annual limitations. For fiscal year 2020, we did not make matching contributions to the 401(k) Plan on behalf of our employees.

Nonqualified deferred compensation

We do not maintain nonqualified defined contribution plans or other nonqualified deferred compensation plans.

Perquisites

We generally do not provide perquisites or personal benefits to our NEOs.

Outstanding Equity Awards at Fiscal Year-End

The following table sets forth information regarding outstanding option awards held by our named executive officers as of December 31, 2020.

	Option Awards[1]				
Name	Grant Date	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Options Exercise Price ($)[2]	Option Expiration Date
Brian McKelligon	11/09/2017[3]	301,631	51,498	0.30	11/09/2027
	11/09/2017[4]	117,709	—	0.30	11/09/2027
	05/02/2019[5]	139,678	108,639	0.44	05/02/2029
	05/02/2019[4]	82,772	—	0.44	05/02/2029
Joseph Driscoll	05/02/2019[5]	157,919	203,039	0.44	05/02/2029
	05/02/2019[4]	133,505	—	0.44	05/02/2029
Niro Ramachandran	11/06/2020[6]	—	171,673	0.91	11/06/2030

(1) All of the option and stock awards were granted pursuant to our 2016 Stock Option Plan, the terms of which plan is described below under "— Equity Incentive Plans."

(2) All of the option awards were granted with a per share exercise price equal to the fair market value of one share of our common stock on the date of grant, as determined in good faith by our board of directors or compensation committee.

(3) The option vests as to one-fourth of the shares on July 14, 2018 and the remaining shares in 36 equal monthly installments measured from July 14, 2018, subject to the recipient's continuous service with us as of each such vesting date.

(4) Such performance-based option shares were issued in 2017 and 2019, respectively. As of the original issuance date, the performance conditions were not established, and therefore there was no grant date as prescribed by ASC 718. In 2020, the options vested as performance conditions were established and determined to have been achieved.

(5) The option vests as to one-fourth of the shares on September 26, 2019 and the remaining shares in 36 equal monthly installments measured from September 26, 2019, subject to the recipient's continuous service with us as of each such vesting date.

(6) The option vests as to one-fourth of the shares on July 13, 2021 and the remaining shares in 36 equal monthly installments measured from July 13, 2021, subject to the recipient's continuous service with us as of each such vesting date.

Equity Incentive Plans

2021 Equity Incentive Plan

In April 2021 our board of directors adopted, and our stockholders approved, the 2021 Plan, which will become effective immediately prior to the closing of this offering. We intend to use the 2021 Plan following the closing of this offering to provide incentives that will assist us to attract, retain, and motivate employees, including officers, consultants, and directors. We may provide these incentives through the grant of stock options, stock appreciation rights, restricted stock, RSUs, performance shares, and units and other cash-based or share-based awards. In addition, the 2021 Plan contains a mechanism through which we may adopt a deferred compensation arrangement in the future.

A total of 1,727,953 shares of our common stock are initially authorized and reserved for future issuance under the 2021 Plan. This reserve will automatically increase on January 1, 2022 and each subsequent anniversary through 2030, by an amount equal to the smaller of:

- 5% of the number of shares of common stock issued and outstanding on the immediately preceding December 31; and
- an amount determined by our board of directors.

Appropriate adjustments will be made in the number of authorized shares and other numerical limits in the 2021 Plan and in outstanding awards to prevent dilution or enlargement of participants' rights in the event of a stock split or other change in our capital structure. Shares subject to awards which expire or are cancelled or forfeited will again become available for issuance under the 2021 Plan.

The shares available under the 2021 Plan will not be reduced by awards settled in cash, but will be reduced by shares withheld to satisfy tax withholding obligations with respect to stock options and stock appreciation rights (but not other types of awards). The gross number of shares issued upon the exercise of stock appreciation rights or options exercised by means of a net exercise or by tender of previously owned shares will be deducted from the shares available under the 2021 Plan.

The 2021 Plan generally will be administered by the compensation committee of our board of directors. Subject to the provisions of the 2021 Plan, the compensation committee will determine in its discretion the persons to whom and the times at which awards are granted, the sizes of such awards and all of their terms and conditions. The compensation committee will have the authority to construe and interpret the terms of the 2021 Plan and awards granted under it. The 2021 Plan provides, subject to certain limitations, for indemnification by us of any director, officer, or employee against all reasonable expenses, including attorneys' fees, incurred in connection with any legal action arising from such person's action or failure to act in administering the 2021 Plan.

During any year, no non-employee director may be granted one or more awards pursuant to the Plan which in the aggregate are for more than a number of shares of our common stock determined by dividing $250,000 by the fair market value of a share of our stock determined on the last trading day immediately preceding the date on which the award is granted.

The 2021 Plan will authorize the compensation committee, without further stockholder approval, to provide for the cancellation of stock options or stock appreciation rights with exercise prices in excess of the fair market value of the underlying shares of common stock on the date of grant in exchange for new options or other equity awards with exercise prices equal to the fair market value of the underlying common stock on the date of grant or a cash payment.

Awards may be granted under the 2021 Plan to our employees, including officers, directors, or consultants or those of any present or future parent or subsidiary corporation or other affiliated entity. All awards will be evidenced by a written agreement between us and the holder of the award and may include any of the following:

- *Stock options.* We may grant non-statutory stock options or incentive stock options (as described in Section 422 of the Code), each of which gives its holder the right, during a specified term (not exceeding ten years) and subject to any specified vesting or other conditions, to purchase a number of shares of our common stock at an exercise price per share determined by the administrator, which may not be less than the fair market value of a share of our common stock on the date of grant.
- *Stock appreciation rights.* A stock appreciation right, or SAR, gives its holder the right, during a specified term (not exceeding ten years) and subject to any specified vesting or other conditions, to receive the appreciation in the fair market value of our common stock between the date of grant of the award and the date of its exercise. We may pay the appreciation in shares of our common stock or in cash.
- *Restricted stock.* The administrator may grant restricted stock awards either as a bonus or as a purchase right at a price determined by the administrator. Shares of restricted stock remain subject to forfeiture until vested, based on such terms and conditions as the administrator specifies. Holders of restricted stock will have the right to vote the shares and to receive any dividends paid, except that the dividends may be subject to the same vesting conditions as the related shares.
- *Restricted stock units.* Restricted stock units, or RSUs, represent rights to receive shares of our common stock (or their value in cash) at a future date without payment of a purchase price, subject

to vesting or other conditions specified by the administrator. Holders of RSUs have no voting rights or rights to receive cash dividends unless and until shares of common stock are issued in settlement of such awards. However, the administrator may grant RSUs that entitle their holders to dividend equivalent rights.

- *Performance awards.* Performance awards, consisting of either performance shares or performance units, are awards that will result in a payment to their holder only if specified performance goals are achieved during a specified performance period. The administrator establishes the applicable performance goals based on one or more measures of business performance, such as revenue, gross margin, net income or total stockholder return. To the extent earned, performance awards may be settled in cash, in shares of our common stock or a combination of both in the discretion of the administrator. Holders of performance shares or performance units have no voting rights or rights to receive cash dividends unless and until shares of common stock are issued in settlement of such awards. However, the administrator may grant performance shares that entitle their holders to dividend equivalent rights.
- *Cash-based awards and other share-based awards.* The administrator may grant cash-based awards that specify a monetary payment or range of payments or other share-based awards that specify a number or range of shares or units that, in either case, are subject to vesting or other conditions specified by the administrator. Settlement of these awards may be in cash or shares of our common stock, as determined by the administrator. Their holders will have no voting rights or right to receive cash dividends unless and until shares of our common stock are issued pursuant to the awards. The administrator may grant dividend equivalent rights with respect to other share-based awards.

In the event of a change in control as described in the 2021 Plan, the acquiring or successor entity may assume or continue all or any awards outstanding under the 2021 Plan or substitute substantially equivalent awards. The compensation committee may provide for the acceleration of vesting of any or all outstanding awards upon such terms and to such extent as it determines, except that the vesting of all awards held by members of the board of directors who are not employees will automatically be accelerated in full. Any awards that are not assumed, continued, or substituted for in connection with a change in control or are not exercised or settled prior to the change in control will terminate effective as of the time of the change in control. Notwithstanding the foregoing, except as otherwise provided in an award agreement governing any award, as determined by the compensation committee, any award that is not assumed, continued, or substituted for in connection with a change in control shall, subject to the provisions of applicable law, become fully vested and exercisable or settleable immediately prior to, but conditioned upon, the consummation of the change in control. The 2021 Plan will also authorize the compensation committee, in its discretion and without the consent of any participant, to cancel each or any outstanding award denominated in shares upon a change in control in exchange for a payment to the participant with respect to each share subject to the cancelled award of an amount equal to the excess of the consideration to be paid per share of common stock in the change in control transaction over the exercise price per share, if any, under the award.

The 2021 Plan will continue in effect until it is terminated by our board of directors, provided, however, that all awards will be granted, if at all, within ten years of its effective date. The board of directors may amend, suspend or terminate the 2021 Plan at any time, provided that without stockholder approval, the plan cannot be amended to increase the number of shares authorized, change the class of persons eligible to receive incentive stock options, or effect any other change that would require stockholder approval under any applicable law or listing rule.

2021 Employee Stock Purchase Plan

In April 2021 our board of directors adopted, and our stockholders approved, the ESPP, which will become effective immediately prior to the closing of this offering.

A total of 172,795 shares of our common stock are initially authorized and reserved for future issuance under the ESPP. In addition, the ESPP provides for annual increases in the number of shares available for issuance under the ESPP on January 1, 2022 and each subsequent anniversary through 2030, equal to the smallest of:

- 0.5% of the number of shares of common stock issued and outstanding on the immediately preceding December 31; or
- such other amount as may be determined by our board of directors.

Appropriate adjustments will be made in the number of authorized shares and in outstanding purchase rights to prevent dilution or enlargement of participants' rights in the event of a stock split or other change in our capital structure. Shares subject to purchase rights which expire or are cancelled will again become available for issuance under the ESPP.

The compensation committee of our board of directors will administer the ESPP and have full authority to interpret the terms of the ESPP. The ESPP provides, subject to certain limitations, for indemnification by us of any director, officer or employee against all judgments, amounts paid in settlement and reasonable expenses, including attorneys' fees, incurred in connection with any legal action arising from such person's action or failure to act in administering the ESPP.

All of our employees, including our named executive officers, and employees of any of our subsidiaries designated by the compensation committee are eligible to participate if they are customarily employed by us or any participating subsidiary for more than 20 hours per week and more than five months in any calendar year, subject to any local law requirements applicable to participants in jurisdictions outside the United States. However, an employee may not be granted rights to purchase stock under the ESPP if such employee:

- immediately after the grant would own stock or options to purchase stock possessing 5% or more of the total combined voting power or value of all classes of our capital stock; or
- holds rights to purchase stock under all of our employee stock purchase plans that would accrue at a rate that exceeds $25,000 worth of our stock for each calendar year in which the right to be granted would be outstanding at any time.

The ESPP is intended to qualify under Section 423 of the Code. Any such sub-plan may or may not be intended to qualify under Section 423 of the Code. The administrator may, in its discretion, establish the terms of future offering periods, including establishing offering periods of up to twenty-seven months and providing for multiple purchase dates. The administrator may vary certain terms and conditions of separate offerings for employees of our non-U.S. subsidiaries where required by local law or desirable to obtain intended tax or accounting treatment.

In general, the ESPP permits participants to purchase common stock through payroll deductions of up to 15% of their eligible cash compensation, which includes a participant's regular base wages or salary and payments of overtime, shift premiums and paid time off before deduction of taxes and certain compensation deferrals. Amounts deducted and accumulated from participant compensation, or otherwise funded through other means in any participating non-U.S. jurisdiction in which payroll deductions are not permitted, are used to purchase shares of our common stock at the end of each offering period.

Unless otherwise provided by the administrator, the purchase price of the shares will be 85% of the lesser of the fair market value of our common stock on the purchase date and the first day of the offering period. In any event, the purchase price in any offering period may not be less than 85% of the fair market value of our common stock on the first day of the offering period or on the purchase date, whichever is less. Participants may end their participation at any time during an offering period and will receive a refund of their account balances not yet used to purchase shares. Participation ends automatically upon termination of employment.

Each participant in an offering will have an option to purchase for each month contained in the offering period a number of shares determined by dividing $2,083.33 by the fair market value of one (1) share of our common stock on the first day of the offering period or 300 shares, if less, and except as limited in order to comply with Section 423 of the Code. Prior to the beginning of any offering period, the administrator may alter the maximum number of shares that may be purchased by any participant during the offering period or specify a maximum aggregate number of shares that may be purchased by all participants in the offering period. If insufficient shares remain available under the plan to permit all participants to purchase the number of shares to which they would otherwise be entitled, the administrator will make a pro rata allocation of the available shares. Any amounts withheld from a participant's compensation in excess

of the amounts used to purchase shares will be refunded, without interest unless otherwise required by a participant's local law.

A participant may not transfer rights granted under the ESPP other than by will, the laws of descent and distribution or as otherwise provided under the ESPP.

In the event of a change in control, an acquiring or successor corporation may assume our rights and obligations under outstanding purchase rights or substitute substantially equivalent purchase rights. If the acquiring or successor corporation does not assume or substitute for outstanding purchase rights, then the purchase date of the offering periods then in progress will be accelerated to a date prior to the change in control.

The ESPP will continue in effect until terminated by the administrator. The compensation committee has the authority to amend, suspend, or terminate the ESPP at any time.

2015 Equity Incentive Plan

The 2015 Plan was originally adopted by our board of directors and approved by our stockholders in November 16, 2015. The maximum aggregate number of shares of common stock that may be issued under the 2015 Plan is 4,947,214. Upon the closing of this offering, our board of directors will terminate the 2015 Plan and we will not grant any further awards under such plan, but the 2015 Plan will continue to govern outstanding awards granted thereunder. Our compensation committee administers the 2015 Plan and has the authority, among other things, to construe and interpret the terms of the 2015 Plan and awards granted thereunder.

The 2015 Plan permits the grant of options. As of December 31, 2020, we had options to purchase 3,920,487 shares of common stock outstanding under the 2015 Plan. Appropriate and proportionate adjustments will be made to the number of shares subject to outstanding awards to prevent dilution or enlargement of participants' rights in the event of a recapitalization, reclassification, stock dividend, stock split, reverse stock split, split-up, split-off, spin-off, combination of shares, exchange of shares or similar change in our capital structure, or in the event of payment of a dividend or distribution to our stockholders in a form other than shares (excepting normal cash dividends). All awards will be evidenced by a written agreement between us and the holder of the award and may include any of the following:

- *Stock options.* We may grant non-statutory stock options or incentive stock options (as described in Section 422 of the Code), each of which gives its holder the right, during a specified term (not exceeding ten years) and subject to any specified vesting or other conditions, to purchase a number of shares of our common stock at an exercise price per share determined by the administrator, which may not be less than the fair market value of a share of our common stock on the date of grant.
- *Restricted stock units.* Restricted stock units, or RSUs, represent rights to receive shares of our common stock (or their value in cash) at a future date without payment of a purchase price, subject to vesting or other conditions specified by the administrator. Holders of RSUs have no voting rights or rights to receive cash dividends unless and until shares of common stock are issued in settlement of such awards. However, the administrator may grant RSUs that entitle their holders to dividend equivalent rights.

In its discretion, our compensation committee may provide for acceleration of the exercisability, vesting or settlement of awards in connection with a "change in control," as defined under the 2015 Plan, of each or any outstanding award or portion thereof and common stock acquired pursuant thereto upon such conditions, including termination of the plan participant's service prior to, upon or following such change in control, and to such extent as our compensation committee determines. In the event of a change in control, the surviving, continuing, successor or purchasing corporation or other business entity or parent thereof, as the case may be, may, without the consent of any plan participant, either assume or continue the rights and obligations under each or any award or portion thereof outstanding immediately prior to the change in control or substitute for each or any such outstanding award or portion thereof a substantially equivalent award with respect to the stock of the surviving, continuing, successor or purchasing corporation or other business entity or parent thereof, as applicable. Any award or portion thereof which is neither assumed nor continued by the surviving, continuing, successor or purchasing corporation or other business

entity or parent thereof in connection with the change in control nor exercised or settled as of the time of consummation of the change in control shall terminate and cease to be outstanding effective as of the time of consummation of the change in control.

401(k) Plan

We maintain a retirement savings plan, or 401(k) Plan, for the benefit of our eligible employees, including our named executive officers. Our 401(k) Plan is intended to qualify under Sections 401 of the Internal Revenue Code. Each participant in the 401(k) Plan may contribute up to the statutory limit of his or her pre-tax compensation. In addition, we can make discretionary matching contributions. All salary deferrals, rollovers and matching contributions are 100% vested when contributed. The 401(k) Plan provides for automatic salary deferrals of 3% of compensation with a 1% escalator each year. Participants are permitted to waive the automatic deferral provision.

Limitation of Liability and Indemnification

Our Certificate of Incorporation will contain provisions that limit the liability of our directors for monetary damages to the fullest extent permitted by Delaware law. Consequently, our directors will not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duties as directors, except liability for:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law, or the DGCL; or
- any transaction from which the director derived an improper personal benefit.

Our Certificate of Incorporation and our Bylaws will provide that we are required to indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law. Our Bylaws will also provide that we may indemnify a director, officer, employee or agent (including the advancement of the final disposition of any action or proceeding), and permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in that capacity regardless of whether we would otherwise be permitted to indemnify him or her under Delaware law. We have entered and expect to continue to enter into agreements to indemnify and advance expenses to our directors, executive officers and other employees as determined by our board of directors. With specified exceptions, these agreements provide for indemnification for related expenses including, among other things, attorneys' fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or proceeding. We believe that these Bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers. We also maintain directors' and officers' liability insurance.

The limitation of liability and indemnification provisions in our Certificate of Incorporation and our Bylaws may discourage stockholders from bringing a lawsuit against our directors and officers for breach of their fiduciary duty. They may also reduce the likelihood of derivative litigation against our directors and officers, even though an action, if successful, might benefit us and our stockholders. Further, a stockholder's investment may be adversely affected to the extent that we pay the costs of settlement and damage.

Director Compensation

We do not currently have a formal compensation program for our non-employee directors. No compensation was paid to our non-employee directors during the year ended December 31, 2021.

We are currently considering a compensation program for our non-employee directors for future implementation that may consist of annual retainer fees or long-term equity awards; however, there can be no assurance at this time that such a program will be implemented or that it will consist of the components noted here. Directors who are also our employees will not receive fees for service on our board of directors.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

Other than the compensation agreements and other arrangements described in the "Executive Compensation" section of this prospectus and the transactions described below, since January 1, 2018, there has not been and there is not currently proposed, any transaction or series of similar transactions to which we were, or will be, a party in which the amount involved exceeded, or will exceed, $120,000 and in which any director, executive officer, holder of 5% or more of any class of our capital stock or any member of the immediate family of, or entities affiliated with, any of the foregoing persons, had, or will have, a direct or indirect material interest.

Series C Preferred Stock Financing

On September 26, 2018, we entered into a Series C Preferred Stock Purchase Agreement, pursuant to which we issued and sold an aggregate of 26,732,361 shares of its Series C convertible preferred stock at a price per share of $0.9539, for an aggregate purchase price of approximately $25.5 million. The following table sets forth the aggregate number of shares of our Series C preferred stock that we issued and sold to our directors, officers and 5% stockholders and their affiliates in this transaction and the aggregate amount of consideration for such shares:

Purchaser[1]	Shares of Series C preferred stock	Cash purchase price
Entities affiliated with Telegraph Hill Partners	22,974,675	$21,915,542
The Board of Trustees of the Leland Stanford Junior University	2,363,411	$ 2,254,458
Matt Winkler	838,662	$ 800,000

(1) See "Principal Stockholders" for additional information about shares held by these entities.

Series D Preferred Stock Financing

On September 27, 2019, the Registrant entered into a Series D Preferred Stock Purchase Agreement, pursuant to which it issued and sold an aggregate of 16,390,217 shares of its Series D convertible preferred stock at a price per share of $1.5253, for an aggregate purchase price of approximately $25.0 million. The following table sets forth the aggregate number of shares of our Series D preferred stock that we issued and sold to our directors, officers and 5% stockholders and their affiliates in this transaction and the aggregate amount of consideration for such shares:

Purchaser[1]	Shares of Series D preferred stock	Cash purchase price
Piper Sandler Merchant Banking Fund II, L.P.	6,556,087	$10,000,000
Entities affiliated with Telegraph Hill Partners	1,966,826	$ 3,000,000
The Board of Trustees of the Leland Stanford Junior University	1,004,988	$ 1,532,908
Matt Winkler	371,793	$ 567,096

(1) See "Principal Stockholders" for additional information about shares held by these entities.

Agreements with our Stockholders

In connection with our Series D convertible preferred stock financing, in September 2019 we entered into an amended and restated investors' rights agreement, or the Investors' Rights Agreement, an amended and restated right of first refusal and co-sale agreement, or the Co-Sale Agreement, and an amended and restated voting agreement, or the Voting Agreement, in each case with Telegraph Hill Partners, Piper Sandler Merchant Banking Fund II, L.P., Stanford and Mr. Winkler. The Investors' Rights Agreement provides certain information and registration rights. All rights under the Investors' Right Agreement, other

than the registration rights, terminate automatically upon the closing of this offering. See the "Description of Capital Stock — Registration Rights" section of this prospectus for more information regarding the registration rights provided in this agreement. The Co-Sale Agreement provides certain rights to purchase securities offered by, and to co-sell along with, a proposed seller of securities. The Co-Sale Agreement will terminate automatically upon the closing of this offering.

The Voting Agreement contains provisions with respect to the election of our board of directors and its composition. Pursuant to the Voting Agreement, all of our current directors were each elected to serve as members on our board of directors. Pursuant to the Voting Agreement, Mr. McKelligon, as our Chief Executive Officer, serves on our board of directors as a representative of our common stockholders, as designated by the holders of a majority of our common stock. Pursuant to the Voting Agreement, Thomas P. Schnettler, a principal of Piper Sandler Merchant Banking Fund II, L.P., was elected to the board. Piper Sandler Merchant Banking Fund II, L.P. is an affiliate of Piper Sandler & Co., an underwriter participating in this offering. See "Underwriting."

Agreements with Stanford

On November 17, 2015, we entered into an exclusive (equity) agreement with Stanford pursuant to which we obtained an exclusive, worldwide license in all fields under Stanford's Codex patent estate. Pursuant to the agreement (as amended), we are required to pay Stanford an annual license fee of $20,000 to $50,000 (which is creditable against royalty payments made to Stanford in the applicable year), royalties of 2.25% on our net sales of our Codex product and a specified percentage of non-royalty sublicensing income. The term of the agreement continues until the expiration of the last licensed patent unless earlier terminated in accordance with the agreement. For the years ended December 31, 2020, 2019 and 2018, we paid license fees and royalties to Stanford of $0.1 million, $0.2 million and $0.1 million, respectively.

We sell reagent kits to Stanford on a purchase order basis. For the years ended December 31, 2020, 2019, and 2018, we recognized revenue from Stanford of $0.4 million, $0.4 million, and $0.1 million, respectively.

Argonaut Manufacturing

We purchase all of our reagent kits for our Codex and Phenoptics platforms from Argonaut Manufacturing Services ("Argonaut"). Argonaut is a portfolio company of Telegraph Hill Partners. During the year ended December 31, 2020, the Company incurred costs of goods sold ofapproximately $1.5 million related to sales of consumables manufactured by Argonaut Manufacturingservices. As of December 31, 2020 and 2019, $1.3 million and $0.3 million, respectively, is included in inventory related to consumables manufactured by Argonaut Manufacturing services. We currently purchase our reagent kits on a purchase order basis, with no minimum or maximum obligations.

Director affiliations

Some of our directors are affiliated with and serve on our board of directors as representatives of entities which beneficially own or owned 5% or more of our common stock, as indicated below:

Director	Principal stockholder
Thomas Raffin	Funds affiliated with Telegraph Hill Partners
Thomas P. Schnettler	Piper Sandler Merchant Banking Fund II, L.P.
Robert Shepler	Funds affiliated with Telegraph Hill Partners

Thomas P. Schnettler, is a principal of Piper Sandler Merchant Banking Fund II, L.P., which is an affiliate of Piper Sandler & Co., an underwriter participating in this offering. See "Underwriting.

Indemnification Agreements

We have entered into indemnification agreements with each of our directors and executive officers. These agreements, among other things, require us to indemnify each director and executive officer to the fullest extent permitted by Delaware law, including indemnification of expenses such as attorneys' fees,

judgments, penalties fines and settlement amounts incurred by the director or executive officer in any action or proceeding, including any action or proceeding by or in right of us, arising out of the person's services as a director or executive officer.

Policies and Procedures for Related Party Transactions

Our board of directors has adopted a written related person transaction policy, to be effective upon the consummation of this offering, setting forth the policies and procedures for the review and approval or ratification of related person transactions. This policy will cover, with certain exceptions set forth in Item 404 of Regulation S-K under the Securities Act, any transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships in which we were or are to be a participant, where the amount involved exceeds $120,000 and a related person had or will have a direct or indirect material interest, including, without limitation, purchases of goods or services by or from the related person or entities in which the related person has a material interest, indebtedness, guarantees of indebtedness and employment by us of a related person. In reviewing and approving any such transactions, our audit committee is tasked to consider all relevant facts and circumstances, including, but not limited to, whether the transaction is on terms comparable to those that could be obtained in an arm's length transaction with an unrelated third party and the extent of the related person's interest in the transaction. All of the transactions described in this section occurred prior to the adoption of this policy.

PRINCIPAL STOCKHOLDERS

The following table sets forth information with respect to the beneficial ownership of our common stock as of December 31, 2020, and as adjusted to reflect the sale of our common stock offered by us in this offering, for:

- each of our named executive officers;
- each of our directors;
- all of our current directors and executive officers as a group; and
- each person, or group of affiliated persons, known by us to be the beneficial owner of more than 5% of our outstanding shares common stock.

We have determined beneficial ownership in accordance with the rules of the SEC, which generally means that a person has beneficial ownership of a security if he or she possesses sole or shared voting or investment power of that security, including options that are currently exercisable or exercisable within 60 days of December 31, 2020. Unless otherwise indicated, to our knowledge, the persons and entities named in the table below have sole voting and sole investment power with respect to all shares that they beneficially own, subject to community property laws where applicable. The information in the table below does not necessarily indicate beneficial ownership for any other purpose, including for purposes of Sections 13(d) and 13(g) of the Securities Act.

We have based our calculation of the percentage of beneficial ownership prior to this offering on 29,109,344 shares of common stock outstanding as of December 31, 2020. We have based our calculation of the percentage of beneficial ownership after this offering on 35,689,344 shares of common stock outstanding immediately after the closing of this offering. In computing the number of shares beneficially owned by an individual or entity and the percentage ownership of that person, shares of common stock subject to options, convertible securities or other rights, held by such person that are currently exercisable or will become exercisable within 60 days of December 31, 2020, are considered outstanding. We did not, however, deem such shares outstanding for the purpose of computing the percentage ownership of any other person.

Unless otherwise indicated, the address of each beneficial owner listed in the table below is c/o Akoya Biosciences, Inc., 100 Campus Drive, 6th Floor, Marlborough, Massachusetts 01752.

Name of Beneficial Owner	Number of Shares Beneficially Owned Prior to Offering	Percentage of Shares Beneficially Owned	
		Prior to this Offering	After this Offering
5% and Greater Stockholders:			
Entities affiliated with Telegraph Hill Partners[1]	15,675,247	53.8%	43.9%
Piper Sandler Merchant Banking Fund II, L.P.[2]	2,813,771	9.7%	7.9%
The Board of Trustees at the Leland Stanford Junior University[3]	2,243,775	7.7%	6.3%
Named Executive Officers and Directors:			
Brian McKelligon[4]	666,850	2.2%	1.8%
Joseph Driscoll[5]	306,464	1.0%	*
Niro Ramachandran[6]	25,035	*	*
Garry Nolan[7]	706,013	2.4%	2.0%
Thomas Raffin[8]	16,104,431	55.3%	45.1%
Tom Schnettler[2]	2,813,771	9.7%	7.9%
Robert Shepler[9]	214,592	*	*
Matt Winkler	781,125	2.7%	2.2%
All executive officers and directors as a group (9 persons)	21,618,281	71.7%	58.9%

* less than 1%.

(1) Consists of (i) 14,134,162 shares of common stock held by Telegraph Hill Partners III, L.P. (“THP III”) and (ii) 1,541,085 shares of common stock held by THP III Affiliates Fund, LLC (“THP III AFF”). Telegraph Hill Partners III Investment Management, LLC (“THP IM”) is the general partner of THP III and the manager of THP III AFF. Telegraph Hill Partners Management Company, LLC (“THPMC”) is the manager of THP IM. J. Matthew Mackowski, Dr. Thomas A. Raffin and Deval Lashkari are each managers of THPMC and are deemed to have beneficial ownership of the shares held by THP III and THP III Affiliates. The address for Telegraph Hill Partners is 360 Post Street, Suite 601, San Francisco, California 94108.

(2) PSC Capital Management II LLC is the general partner of Piper Sandler Merchant Banking Fund II, L.P. Piper Sandler Companies is the manager of PSC Capital Management II LLC. Tom Schnettler, the Co-CEO of PSC Capital Management II LLC, disclaims beneficial ownership of the shares held by Piper Sandler Merchant Banking Fund II, L.P. The address for Piper Sandler Merchant Banking Fund II, L.P. is 800 Nicollet Mall Suite 1000 Minneapolis, MN 55402.

(3) Consists of 2,243,775 shares held by The Board of Trustees at the Leland Stanford Junior University. The Board of Trustees at the Leland Stanford Junior University has sole voting and dispositive power over such shares.

(4) Consists of 666,850 shares of common stock issuable upon exercise of options exercisable within 60 days of December 31, 2020.

(5) Consists of 306,464 shares of common stock issuable upon exercise of options exercisable within 60 days of December 31, 2020.

(6) Consists of 25,035 shares of common stock issuable upon exercise of options exercisable within 60 days of December 31, 2020.

(7) Consists of (i) 680,084 shares of common stock held directly by Mr. Nolan, and (ii) 25,929 shares of common stock issuable upon exercise of options exercisable within 60 days of December 31, 2020.

(8) Consists of (i) 429,184 shares of common stock held directly by Mr. Raffin, (ii) 14,134,162 shares of common stock held by THP III and (iii) 1,541,085 shares of common stock held by THP III AFF. Mr. Raffin is a managing member of THPMC and is deemed to have beneficial ownership of the shares held by THP III and THP III Affiliates. Mr. Raffin disclaims beneficial ownership of such securities held by THP III and THP III Affiliates, except to the extent of any pecuniary interest therein.

(9) Mr. Shepler is a former managing member of THPMC and has a pecuniary interest in the shares held by THP III and THP III Affiliates. Mr. Shepler disclaims beneficial ownership of such securities held by THP III and THP III Affiliates, except to the extent of any pecuniary interest therein.

DESCRIPTION OF CAPITAL STOCK

General

As of the closing of this offering, our authorized capital stock will consist of 500,000,000 shares of common stock, par value $0.00001 per share, and 10,000,000 shares of preferred stock, par value $0.00001 per share.

The following descriptions of our capital stock, provisions of our Certificate of Incorporation, our Bylaws and the Investors' Rights Agreement are summaries and are qualified by reference to the full text of those documents, copies of which will be filed with the SEC as exhibits to the registration statement of which this prospectus forms a part. The following summary of relevant provisions of the DGCL is qualified by the full text of such provisions. The description of our capital stock reflects changes to our capital structure that will occur prior to the closing of this offering.

Because these are only summaries, they do not contain all the information that may be important to you. We expect to adopt a restated certificate of incorporation and restated bylaws that will become effective upon the completion of this offering, and this description summarizes provisions that are expected to be included in these documents.

Common Stock

As of December 31, 2020, we had no shares of Class A common stock and 2,563,765 shares of Class B common Stock outstanding and 61,851,241 shares of preferred stock outstanding. After giving effect to the conversion of all outstanding shares of Class B common stock and preferred stock into shares of common stock immediately prior to the closing of this offering, there would have been 29,109,344 shares of common stock outstanding on December 31, 2020, held of record by 48 stockholders.

The holders of common stock will be entitled to one vote per share on all matters to be voted upon by the stockholders. The holders of common stock will be entitled to receive ratably those dividends, if any, that may be declared from time to time by our board of directors out of funds legally available, subject to preferences that may be applicable to preferred stock, if any, then outstanding. In the event of a liquidation, dissolution or winding up of our company, the holders of common stock will be entitled to share ratably in all assets remaining after payment of liabilities, subject to prior distribution rights of preferred stock, if any, then outstanding. The common stock will have no preemptive or conversion rights or other subscription rights. There are no redemption or sinking fund provisions applicable to the common stock. Following the closing of this offering, all outstanding shares of common stock will be fully paid and non-assessable.

Preferred Stock

No shares of preferred stock will be issued or outstanding immediately after the offering contemplated by this prospectus. Our Certificate of Incorporation will authorize our board of directors to establish one or more series of preferred stock (including convertible preferred stock). Unless required by law or any stock exchange, the authorized shares of preferred stock will be available for issuance without further action by the holders of our common stock. Our board of directors will be able to determine, with respect to any series of preferred stock, the powers (including voting powers), preferences and relative, participating, optional or other special rights, and the qualifications, limitations, or restrictions thereof, including:

- the designation of the series;
- the number of shares of the series, which our board of directors may, except where otherwise provided in the preferred stock designation, increase (but not above the total number of authorized shares of the class) or decrease (but not below the number of shares then outstanding);
- whether dividends, if any, will be cumulative or non-cumulative and the dividend rate of the series;
- the dates at which dividends, if any, will be payable;
- the redemption or repurchase rights and price or prices, if any, for shares of the series;

- the terms and amounts of any sinking fund provided for the purchase or redemption of shares of the series;
- the amounts payable on shares of the series in the event of any voluntary or involuntary liquidation, dissolution or winding-up of our affairs;
- whether the shares of the series will be convertible into shares of any other class or series, or any other security, of us or any other entity, and, if so, the specification of the other class or series or other security, the conversion price or prices or rate or rates, any rate adjustments, the date or dates as of which the shares will be convertible and all other terms and conditions upon which the conversion may be made;
- restrictions on the issuance of shares of the same series or of any other class or series; and
- the voting rights, if any, of the holders of the series.

We could issue a series of preferred stock that could, depending on the terms of the series, impede or discourage an acquisition attempt or other transaction that some, or a majority, of the holders of our common stock might believe to be in their best interests or in which the holders of our common stock might receive a premium over the market price of the shares of our common stock. Additionally, the issuance of preferred stock may adversely affect the rights of holders of our common stock by restricting dividends on the common stock, diluting the voting power of the common stock, or subordinating the liquidation rights of the common stock. As a result of these or other factors, the issuance of preferred stock could have an adverse impact on the market price of our common stock.

Registration Rights

Upon the closing of this offering, holders of 26,545,579 shares of our common stock, which shares we refer to as "registrable securities," will be entitled to rights with respect to the registration of these registrable securities under the Securities Act. These rights are provided under the terms of the Investors' Rights Agreement. The Investors' Rights Agreement includes demand registration rights and piggyback registration rights.

All underwriting discounts applicable to the sale of registrable securities pursuant to the Investors' Rights Agreement shall be borne by the holders of registrable securities participating in such sale. Any additional expenses incurred in connection with exercise of registration rights under the Investors' Rights Agreement, including all registration, filing and qualification fees, printers' and accounting fees, and fees and disbursements of our counsel shall be borne by us.

Subject to certain exceptions contained in the Investors' Rights Agreement, the underwriters may limit the number of shares included in an underwritten offering by holders of registrable securities to the number of shares which the underwriters determine in their sole discretion will not jeopardize the success of the offering.

Demand Registration Rights

Form S-1. If at any time beginning six months following the effective date of the registration statement of which this prospectus forms a part, investors holding at least 65% of the registrable securities then outstanding request in writing that we effect a registration and the anticipated price to the public of such registrable securities is $10.0 million or more, we may be required to register their shares. We are obligated to effect at most two registrations for the holders of registrable securities in response to these demand registration rights, subject to certain exceptions.

Form S-3. If at any time we become entitled under the Securities Act to register our shares on Form S-3, investors holding at least 65% of the registrable securities then outstanding request in writing that we register their shares for public resale on Form S-3 and the price to the public of the offering is $1.0 million or more, we will be required to provide notice to all holders of registrable securities and to use all reasonable efforts to effect such registration; provided, however, that we will not be required to effect such a registration if, we have already effected two registrations on Form S-1 for the holders of registrable securities.

Piggyback Registration Rights

After the closing of this offering, if we propose to register the offer and sale of any of our securities under the Securities Act in connection with the public offering of such securities, the holders of registrable securities will be entitled to certain "piggyback" registration rights allowing such holders to include their shares in such registration, subject to certain limitations. As a result, whenever we propose to file a registration statement under the Securities Act, other than with respect to a registration related solely to an employee benefit plan, a registration related solely to a corporate reorganization or transaction under Rule 145 of the Securities Act or any rule adopted by the SEC in substitution thereof or amendment thereto, or a registration on any registration form which does not include substantially the same information as would be required to be included in a registration statement covering the sale of registrable securities, the holders of these shares are entitled to notice of the registration and have the right to include their shares in the registration.

Anti-Takeover Matters in our Governing Documents and Under Delaware Law

Our Certificate of Incorporation and our Bylaws will contain, and the DGCL contains, provisions that are intended to enhance the likelihood of continuity and stability in the composition of our board of directors. These provisions are intended to avoid costly takeover battles, reduce our vulnerability to a hostile or abusive change of control, and enhance the ability of our board of directors to maximize stockholder value in connection with any unsolicited offer to acquire us. However, these provisions may have an antitakeover effect and may delay, deter, or prevent a merger or acquisition by means of a tender offer, a proxy contest, or other takeover attempt that a stockholder might consider in its best interest, including those attempts that might result in a premium over the prevailing market price for the shares of common stock held by stockholders.

Authorized But Unissued Capital Stock

The authorized but unissued shares of common stock and preferred stock are available for future issuance without stockholder approval, subject to any limitations imposed by the listing standards of Nasdaq. These additional shares may be used for a variety of corporate finance transactions, acquisitions and employee benefit plans. The existence of authorized but unissued and unreserved common stock and preferred stock could make more difficult or discourage an attempt to obtain control of us by means of a proxy contest, tender offer, merger, or otherwise.

Classified Board of Directors

Our Certificate of Incorporation will provide that our board of directors will be divided into three classes, with the classes as nearly equal in number as possible and each class serving three-year staggered terms. Directors may only be removed from our board of directors for cause by the affirmative vote of at least 66⅔% of the voting power of all of our then-outstanding shares of capital stock entitled to vote generally in the election of directors, voting together as a single class. In addition, our Certificate of Incorporation will provide that, subject to the rights granted to one or more series of preferred stock then outstanding, any newly created directorship on the board of directors that results from an increase in the number of directors and any vacancies on our board of directors will be filled only by the affirmative vote of a majority of the remaining directors, even if less than a quorum, or by a sole remaining director. After this offering, a director chosen to fill a position resulting from an increase in the number of directors will hold office until the next election of the director's class and until the director's successor is duly elected and qualified, or until the director's earlier death, resignation or removal. These provisions may have the effect of deferring, delaying, or discouraging hostile takeovers, changes in control of us or changes in our management.

Delaware Anti-Takeover Law

After this offering, we will be subject to Section 203 of the DGCL, which is an anti-takeover law. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a business combination with an interested stockholder for a period of three years following the date that the person became an interested stockholder, unless the business combination or the transaction in which the person became an interested stockholder is approved in a prescribed manner. Generally, a business combination includes a

merger, asset or stock sale, or another transaction resulting in a financial benefit to the interested stockholder. Generally, an interested stockholder is a person who, together with affiliates and associates, owns 15% or more of the corporation's outstanding voting stock or is the corporation's affiliate or associate and was the owner of 15% or more of the corporation's outstanding voting stock at any time within the three-year period immediately before the date of determination. The existence of this provision may have an anti-takeover effect with respect to transactions that are not approved in advance by our board, including discouraging attempts that might result in a premium over the market price for the shares of common stock held by stockholders.

No Cumulative Voting

Under Delaware law, the right to vote cumulatively does not exist unless the certificate of incorporation specifically authorizes cumulative voting. Our Certificate of Incorporation will not authorize cumulative voting. Therefore, stockholders holding a majority of the shares of our stock entitled to vote generally in the election of directors will be able to elect all of our directors.

Special Stockholder Meetings

Our Certificate of Incorporation will provide that special meetings of our stockholders may be called at any time only by or at the direction of the board of directors, the chair of the board of directors or our Chief Executive Officer. Our Bylaws will prohibit the conduct of any business at a special meeting other than as specified in the notice for such meeting. These provisions may have the effect of deferring, delaying, or discouraging hostile takeovers or changes in control or management.

Director Nominations and Stockholder Proposals

Our Bylaws will establish advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors, other than nominations made by or at the direction of the board of directors or a committee of the board of directors. In order for any matter to be "properly brought" before a meeting, a stockholder will have to comply with advance notice requirements and provide us with certain information. Generally, to be timely, a stockholder's notice must be received at our principal executive offices not less than 90 days nor more than 120 days prior to the first anniversary date of the immediately preceding annual meeting of stockholders. Our Bylaws will also specify requirements as to the form and content of a stockholder's notice. Our Bylaws will allow the chair of a meeting of the stockholders to adopt rules and regulations for the conduct of that meeting that may have the effect of precluding the conduct of certain business at that meeting if the rules and regulations are not followed. These provisions may also defer, delay, or discourage a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to influence or obtain control.

Stockholder Action by Written Consent

Pursuant to Section 228 of the DGCL, any action required to be taken at any annual or special meeting of the stockholders may be taken without a meeting, without prior notice, and without a vote if a consent or consents in writing, setting forth the action so taken, is or are signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares of our stock entitled to vote thereon were present and voted, unless the certificate of incorporation provides otherwise. Our Certificate of Incorporation will preclude stockholder action by written consent.

Amendment of Certificate of Incorporation or Bylaws

The DGCL provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or bylaws, unless a corporation's certificate of incorporation or bylaws, as the case may be, requires a greater percentage. Upon the closing of this offering, our Bylaws may be amended or repealed by a majority vote of our board of directors or by the affirmative vote of the holders of at least 66⅔% of the votes which all our stockholders would be entitled to cast in any annual election of directors. In addition, the affirmative vote of the holders of at least 66⅔% of the votes which all our stockholders would be entitled to cast in any election of directors will be

required to amend or repeal or to adopt any provisions inconsistent with any of the provisions of our Certificate of Incorporation described above.

The foregoing provisions of our Certificate of Incorporation and our Bylaws could discourage potential acquisition proposals and could delay or prevent a change in control. These provisions are intended to enhance the likelihood of continuity and stability in the composition of our board of directors and in the policies formulated by our board of directors and to discourage certain types of transactions that may involve an actual or threatened change of control. These provisions are designed to reduce our vulnerability to an unsolicited acquisition proposal. The provisions also are intended to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and, as a consequence, they also may inhibit fluctuations in the market price of our shares of common stock that could result from actual or rumored takeover attempts. Such provisions also may have the effect of preventing changes in our management or delaying or preventing a transaction that might benefit you or other minority stockholders.

Exclusive Forum

Our Certificate of Incorporation will provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware be the sole and exclusive forum for: (1) any derivative action or proceeding brought on behalf of our company, (2) any action asserting a claim of breach of fiduciary duty owed by any director, officer, agent, or other employee or stockholder of our company to us or our stockholders, (3) any action asserting a claim arising pursuant to any provision of the DGCL, our Certificate of Incorporation or our Bylaws or as to which the DGCL confers jurisdiction on the Court of Chancery of the State of Delaware, or (4) any action asserting a claim governed by the internal affairs doctrine, in each case subject to such Court of Chancery having personal jurisdiction over the indispensable parties named as defendants therein. It will further provide that, unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States of America shall, to the fullest extent permitted by law, be the sole and exclusive forum for the resolutions of any complaint asserting a cause of action arising under the Securities Act. The exclusive forum clauses described above shall not apply to suits brought to enforce a duty or liability created by the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. Although we believe these provisions benefit us by providing increased consistency in the application of applicable law in the types of lawsuits to which they apply, the provisions may have the effect of discouraging lawsuits against our directors and officers. The enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings and there is uncertainty as to whether a court would enforce such provisions. In addition, investors cannot waive compliance with the federal securities laws and the rules and regulations thereunder. It is possible that, in connection with any applicable action brought against us, a court could find the choice of forum provisions contained in our Certificate of Incorporation to be inapplicable or unenforceable in such action. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock shall be deemed to have notice of and consented to the forum provisions in our Certificate of Incorporation.

Limitations of Liability and Indemnification

The DGCL authorizes corporations to limit or eliminate the personal liability of directors to corporations and their stockholders for monetary damages for breaches of directors' fiduciary duties, subject to certain exceptions. Our Certificate of Incorporation includes a provision that eliminates the personal liability of directors for monetary damages to the corporation or its stockholders for any breach of fiduciary duty as a director, except to the extent such exemption from liability or limitation thereof is not permitted under the DGCL. The effect of these provisions is to eliminate the rights of us and our stockholders, through stockholders' derivative suits on our behalf, to recover monetary damages from a director for breach of fiduciary duty as a director, including breaches resulting from grossly negligent behavior. However, exculpation does not apply to any breaches of the director's duty of loyalty, any acts or omissions not in good faith or that involve intentional misconduct or knowing violation of law, any authorization of dividends or stock redemptions or repurchases paid or made in violation of the DGCL, or for any transaction from which the director derived an improper personal benefit.

Our Bylaws will generally provide that we must indemnify and advance expenses to our directors and officers to the fullest extent authorized by the DGCL. We also are expressly authorized to carry directors' and officers' liability insurance providing indemnification for our directors, officers and certain employees for some liabilities. We believe these indemnification and advancement provisions and insurance are useful to attract and retain qualified directors and executive officers.

The limitation of liability, indemnification and advancement provisions in our Certificate of Incorporation and our Bylaws may discourage stockholders from bringing a lawsuit against directors for breach of their fiduciary duty. These provisions also may have the effect of reducing the likelihood of derivative litigation against directors and officers, even though such an action, if successful, might otherwise benefit us and our stockholders. In addition, your investment may be adversely affected to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions.

There is currently no pending material litigation or proceeding involving any of our directors, officers or employees for which indemnification is sought.

We intend to enter into an indemnification agreement with each of our directors and executive officers as described in "Certain Relationships and Related Party Transactions — Indemnification Agreements." Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors or executive officers, we have been informed that in the opinion of the SEC such indemnification is against public policy and is therefore unenforceable.

Transfer Agent and Registrar

Upon the closing of this offering, the transfer agent and registrar for our common stock will be American Stock Transfer & Trust Company, LLC. The transfer agent's address is 6201 15th Avenue, Brooklyn, New York 11219.

Nasdaq Listing

Our common stock has been approved for listing on the Nasdaq Global Select Market under the symbol "AKYA."

SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, there has been no public market for our common stock, and we cannot predict the effect, if any, that market sales of shares of our common stock or the availability of shares of our common stock for sale will have on the market price of our common stock prevailing from time to time. Future sales of our common stock in the public market, or the availability of such shares for sale in the public market, could adversely affect market prices prevailing from time to time. As described below, only a limited number of shares of our common stock will be available for sale shortly after this offering due to contractual and legal restrictions on resale. Nevertheless, sales of our common stock in the public market after such restrictions lapse, or the perception that those sales may occur, could adversely affect the prevailing market price at such time and our ability to raise equity capital in the future.

Following the closing of this offering, based on the number of shares of our capital stock outstanding as of December 31, 2021, 35,689,344 shares of common stock will be outstanding. Of these outstanding shares, all of the shares of our common stock sold in this offering will be freely tradable, except that any shares purchased in this offering by our affiliates, as that term is defined in Rule 144 under the Securities Act, would only be able to be sold in compliance with the Rule 144 limitations described below.

The remaining outstanding shares of our common stock not sold in this offering will be, and shares subject to stock options will, upon issuance, be deemed "restricted securities" as defined in Rule 144 under the Securities Act. Restricted securities may be sold in the public market only if they are registered or if they qualify for an exemption from registration under Rule 144 or Rule 701 under the Securities Act, which rules are summarized below. All of our executive officers, directors and holders of substantially all of our capital stock and securities exchangeable or exercisable for our capital stock have entered into lock-up agreements with the underwriters under which they have agreed, subject to certain customary exceptions, not to sell any of our stock for 180 days following the date of this prospectus. As a result of these agreements and subject to the provisions of Rule 144 or Rule 701, shares of our common stock will be available for sale in the public market as follows:

- beginning on the date of this prospectus, all 6,580,000 shares of our common stock sold in this offering will be immediately available for sale in the public market; and
- beginning 181 days after the date of this prospectus, the remaining 29,109,344 shares of our common stock will be eligible for sale in the public market from time to time thereafter, subject in some cases to the volume and other restrictions of Rule 144, as described below.

Lock-Up Agreements

All of our directors and officers and security holders are, or will be, subject to lock-up agreements or market standoff provisions that prohibit them from offering for sale, selling, contracting to sell, granting any option for the sale of, transferring or otherwise disposing of any shares of our common stock, options to acquire shares of our common stock or any security or instrument related to our common stock, or entering into any swap, hedge or other arrangement that transfers any of the economic consequences of ownership of our common stock, for a period of 180 days following the date of this prospectus without the prior written consent of J.P. Morgan Securities LLC and Morgan Stanley & Co. LLC, subject to certain exceptions. See the section entitled "Underwriting" for more information.

Rule 144

In general, under Rule 144 as currently in effect, once we have been subject to the public company reporting requirements of Section 13 or Section 15(d) of the Exchange Act for at least 90 days, a person who is not deemed to have been one of our affiliates for purposes of the Securities Act at any time during the 90 days preceding a sale and who has beneficially owned the shares of our common stock proposed to be sold for at least six months is entitled to sell those shares without complying with the manner of sale, volume limitation or notice provisions of Rule 144, subject to compliance with the public information requirements of Rule 144. If such a person has beneficially owned the shares proposed to be sold for at least one year, including the holding period of any prior owner other than our affiliates, then that person would be entitled to sell those shares without complying with any of the requirements of Rule 144.

In general, under Rule 144, as currently in effect, our affiliates or persons selling shares of our common stock on behalf of our affiliates are entitled to sell upon expiration of the market standoff agreements and lock-up agreements described above, within any three-month period, a number of shares that does not exceed the greater of:

- 1% of the number of shares of our capital stock then outstanding, which will equal 356,893 shares immediately after this offering; or
- the average weekly trading volume of our common stock during the four calendar weeks preceding the filing of a notice on Form 144 with respect to that sale.

Sales under Rule 144 by our affiliates or persons selling shares of our common stock on behalf of our affiliates are also subject to manner of sale provisions and notice requirements and to the availability of current public information about us.

Rule 701

Rule 701 generally allows a stockholder who purchased shares of our capital stock pursuant to a written compensatory plan or contract and who is not deemed to have been an affiliate of our company during the immediately preceding 90 days to sell these shares in reliance upon Rule 144, but without being required to comply with the public information, holding period, volume limitation or notice provisions of Rule 144. Rule 701 also permits affiliates of our company to sell their Rule 701 shares under Rule 144 without complying with the holding period requirements of Rule 144. All holders of Rule 701 shares, however, are required to wait until 90 days after the date of this prospectus before selling those shares pursuant to Rule 701.

Form S-8 Registration Statement

We intend to file a registration statement on Form S-8 under the Securities Act promptly after the closing of this offering to register shares of our common stock subject to options outstanding, as well as reserved for future issuance, under our equity compensation plans. The registration statement on Form S-8 is expected to become effective immediately upon filing, and shares of our common stock covered by the registration statement will then become eligible for sale in the public market, subject to the Rule 144 limitations applicable to affiliates, vesting restrictions and any applicable market standoff agreements and lock-up agreements. See the section captioned “Executive Compensation — Employee Benefit and Equity Incentive Plans” for a description of our equity compensation plans.

Registration Rights

We have granted certain registration rights to certain of our stockholders to sell our common stock. Registration of the sale of these shares under the Securities Act would result in these shares becoming freely tradable without restriction under the Securities Act immediately upon the effectiveness of the registration, except for shares purchased by affiliates. For a further description of these rights, see the section entitled “Description of Capital Stock — Registration Rights.”

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES TO NON-U.S. HOLDERS

The following is a summary of the material U.S. federal income tax consequences to non-U.S. holders (as defined below) of the ownership and disposition of our common stock issued pursuant to this offering. This discussion is not a complete analysis of all potential U.S. federal income tax consequences relating thereto, does not address the potential application of the Medicare contribution tax on net investment income, and does not address any estate or gift tax consequences or any tax consequences arising under any state, local or non-U.S. tax laws, or any other U.S. federal tax laws. This discussion is based on the Code, Treasury Regulations promulgated thereunder, judicial decisions and published rulings and administrative pronouncements of the IRS, all as in effect on the date of this prospectus supplement. These authorities are subject to differing interpretations and may change, possibly retroactively, resulting in U.S. federal income tax consequences different from those discussed below. We have not requested a ruling from the IRS with respect to the statements made and the conclusions reached in the following summary, and there can be no assurance that the IRS or a court would agree with such statements and conclusions.

This discussion is limited to non-U.S. holders who purchase our common stock pursuant to this offering and who hold our common stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all of the U.S. federal income tax consequences that may be relevant to an individual holder in light of such holder's particular circumstances. This discussion also does not consider any specific facts or circumstances that may be relevant to non-U.S. holders subject to special rules under the U.S. federal income tax laws, including:

- certain former citizens or long-term residents of the United States;
- partnerships or other pass-through entities (and investors therein);
- "controlled foreign corporations";
- "passive foreign investment companies";
- corporations that accumulate earnings to avoid U.S. federal income tax;
- banks, financial institutions, investment funds, insurance companies, brokers, dealers or traders in securities;
- tax-exempt organizations and governmental organizations;
- tax-qualified retirement plans;
- persons subject to the alternative minimum tax;
- persons subject to special tax accounting rules under Section 451(b) of the Code;
- persons that own or have owned, actually or constructively, more than 5% of our common stock;
- persons who have elected to mark securities to market; and
- persons holding our common stock as part of a hedging or conversion transaction or straddle, or a constructive sale, or other risk reduction strategy or integrated investment.

If an entity or arrangement that is classified as a partnership for U.S. federal income tax purposes holds our common stock, the U.S. federal income tax treatment of a partner in the partnership will generally depend on the status of the partner and the activities of the partnership. Partnerships holding our common stock and the partners in such partnerships are urged to consult their tax advisors about the particular U.S. federal income tax consequences to them of holding and disposing of our common stock.

PROSPECTIVE INVESTORS SHOULD CONSULT THEIR TAX ADVISORS REGARDING THE PARTICULAR U.S. FEDERAL INCOME TAX CONSEQUENCES TO THEM OF ACQUIRING, OWNING AND DISPOSING OF OUR COMMON STOCK, AS WELL AS ANY TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL OR FOREIGN TAX LAWS AND ANY OTHER U.S. FEDERAL TAX LAWS.

Definition of Non-U.S. Holder

For purposes of this discussion, a non-U.S. holder is any beneficial owner of our common stock that is not a "U.S. person" or a partnership (including any entity or arrangement treated as a partnership) or other

pass-through entity for U.S. federal income tax purposes. A U.S. person is any person that is or is treated as any of the following:

- an individual who is a citizen or resident of the United States, as determined for U.S. federal income tax purposes;
- a corporation (including any entity treated as a corporation for U.S. federal income tax purposes) created or organized under the laws of the United States, any state thereof or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust (1) whose administration is subject to the primary supervision of a U.S. court and which has one or more U.S. persons who have the authority to control all substantial decisions of the trust or (2) that has a valid election in effect under applicable Treasury Regulations to be treated as a U.S. person.

If you are an individual non-U.S. citizen, you may, in some cases, be deemed to be a resident alien (as opposed to a nonresident alien) by virtue of being present in the United States for at least 31 days in the calendar year and for an aggregate of at least 183 days during a three-year period ending in the current calendar year. Generally, for this purpose, all the days present in the current year, one-third of the days present in the immediately preceding year, and one-sixth of the days present in the second preceding year, are counted.

Resident aliens are generally subject to U.S. federal income tax as if they were U.S. citizens. Individuals who are uncertain of their status as resident or nonresident aliens for U.S. federal income tax purposes are urged to consult their own tax advisors regarding the U.S. federal income tax consequences of the ownership or disposition of our common stock.

Distributions on Our Common Stock

If we distribute cash or other property on our common stock, such distributions will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. Amounts distributed in excess of our current and accumulated earnings and profits will constitute a return of capital and will first be applied against and reduce a non-U.S. holder's tax basis in our common stock, but not below zero. Any distribution in excess of a non-U.S. basis will be treated as gain realized on the sale or other disposition of our common stock and will be treated as described in the "*Gain On Disposition of Our Common Stock*" section below.

Subject to the discussion below regarding effectively connected income, backup withholding and FATCA (as defined below), dividends paid to a non-U.S. holder of our common stock generally will be subject to U.S. federal withholding tax at a rate of 30% of the gross amount of the dividends or such lower rate specified by an applicable income tax treaty. To receive the benefit of a reduced treaty rate, a non-U.S. holder must furnish the applicable withholding agent with a valid IRS Form W-8BEN or IRS Form W-8BEN-E (or other applicable form) certifying such non-U.S. holder's qualification for the reduced rate. This certification must be provided to the applicable withholding agent before the payment of dividends and generally must be updated periodically. If the non-U.S. holder holds our common stock through a financial institution or other agent acting on the non-U.S. holder's behalf, the non-U.S. holder will be required to provide appropriate documentation to the agent, which then will be required to provide certification to the applicable withholding agent, either directly or through other intermediaries.

If a non-U.S. holder holds our common stock in connection with the conduct of a trade or business in the United States, and dividends paid on our common stock are effectively connected with such non-U.S. holder's U.S. trade or business (and are attributable to a permanent establishment or fixed base maintained in the United States by such non-U.S. holder, if required by an applicable tax treaty), the non-U.S. holder will generally be exempt from U.S. federal withholding tax, provided that the non-U.S. holder furnishes a valid IRS Form W-8ECI (or applicable successor form) to the applicable withholding agent.

However, any such effectively connected dividends paid on our common stock generally will be subject to U.S. federal income tax on a net income basis at regular U.S. federal income tax rates in the same manner as if such non-U.S. holder were a resident of the United States. A non-U.S. holder that is a foreign

corporation also may be subject to an additional branch profits tax equal to 30% (or such lower rate specified by an applicable income tax treaty) of its effectively connected earnings and profits for the taxable year, as adjusted for certain items.

Non-U.S. holders that do not provide the required certification on a timely basis, but that qualify for a reduced treaty rate, may obtain a refund of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS. Non-U.S. holders should consult their tax advisors regarding any applicable income tax treaties that may provide for different rules.

Gain on Disposition of Our Common Stock

Subject to the discussion below regarding backup withholding and FATCA (as defined below), a non-U.S. holder generally will not be subject to U.S. federal income tax on any gain realized on the sale or other disposition of our common stock, unless:

- the gain is effectively connected with the non-U.S. holder's conduct of a trade or business in the United States and, if required by an applicable income tax treaty, is attributable to a permanent establishment or fixed base maintained by the non-U.S. holder in the United States;
- the non-U.S. holder is a nonresident alien individual present in the United States for 183 days or more during the taxable year of the disposition, and certain other requirements are met; or
- our common stock constitutes a "U.S. real property interest" by reason of our status as a U.S. real property holding corporation, or USRPHC, for U.S. federal income tax purposes at any time within the shorter of the five-year period preceding the disposition or the non-U.S. holder's holding period for our common stock, and our common stock is not regularly traded on an established securities market during the calendar year in which the sale or other disposition occurs.

Determining whether we are a USRPHC depends on the fair market value of our U.S. real property interests (if any) relative to the fair market value of our other trade or business assets and our foreign real property interests (if any). We believe we are not currently and we do not anticipate becoming a USRPHC for U.S. federal income tax purposes, although there can be no assurance we will not in the future become a USRPHC.

Gain described in the first bullet point above generally will be subject to U.S. federal income tax on a net income basis at regular U.S. federal income tax rates in the same manner as if such non-U.S. holder were a resident of the United States. A non-U.S. holder that is a foreign corporation also may be subject to an additional branch profits tax equal to 30% (or such lower rate specified by an applicable income tax treaty) of its effectively connected earnings and profits for the taxable year, as adjusted for certain items. Gain described in the second bullet point above will be subject to U.S. federal income tax at a flat 30% rate (or such lower rate specified by an applicable income tax treaty), but may be offset by certain U.S.-source capital losses (even though the individual is not considered a resident of the United States), provided that the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses. Gain described in the third bullet point above will generally be subject to U.S. federal income tax in the same manner as gain that is effectively connected with the conduct of a U.S. trade or business (subject to any provisions under an applicable income tax treaty), except that the branch profits tax generally will not apply.

Non-U.S. holders should consult their tax advisors regarding any applicable income tax treaties that may provide for different rules.

Information Reporting and Backup Withholding

Annual reports are required to be filed with the IRS and provided to each non-U.S. holder indicating the amount of dividends on our common stock paid to such non-U.S. holder and the amount of any tax withheld with respect to those dividends. These information reporting requirements apply even if no withholding was required because the dividends were effectively connected with the non-U.S. holder's conduct of a U.S. trade or business, or withholding was reduced or eliminated by an applicable income tax treaty. This information also may be made available under a specific treaty or agreement with the tax authorities in the country in which the non-U.S. holder resides or is established.

Backup withholding, currently at a 24% rate, generally will not apply to payments to a non-U.S. holder of dividends on or the gross proceeds of a disposition of, our common stock provided the non-U.S. holder furnishes the required certification for its non-U.S. status, such as by providing a valid IRS Form W-8BEN, IRS Form W-8BEN-E, or IRS Form W-8ECI, or certain other requirements are met. Backup withholding may apply if the payor has actual knowledge, or reason to know, that the holder is a U.S. person who is not an exempt recipient.

Backup withholding is not an additional tax. If any amount is withheld under the backup withholding rules, the non-U.S. holder should consult with a U.S. tax advisor regarding the possibility of and procedure for obtaining a refund or a credit against the non-U.S. holder's U.S. federal income tax liability, if any.

Withholding on Foreign Entities

The Foreign Account Tax Compliance Act, or FATCA, as reflected in Sections 1471 through 1474 of the Code, imposes a U.S. federal withholding tax of 30% on certain payments, including dividends paid in respect of our common stock and, subject to the Proposed Treasury Regulations as discussed below, the gross proceeds of disposition on our common stock, made to a "foreign financial institution" (as specially defined under these rules) unless such institution enters into an agreement with the U.S. government to withhold on certain payments and to collect and provide to the U.S. tax authorities substantial information regarding certain U.S. account holders of such institution (which includes certain equity and debt holders of such institution, as well as certain account holders that are foreign entities with U.S. owners) or an exemption applies. FATCA also generally will impose a U.S. federal withholding tax of 30% on certain payments, including dividends paid in respect of our common stock and, subject to the Proposed Treasury Regulations as discussed below, the gross proceeds of disposition on our common stock, made to a non-financial foreign entity unless such entity provides the withholding agent a certification identifying certain direct and indirect U.S. owners of the entity or an exemption applies. An intergovernmental agreement between the United States and an applicable foreign country may modify these requirements. Under certain circumstances, a non-U.S. holder might be eligible for refunds or credits of such taxes. FATCA withholding currently applies to dividends paid on our common stock. Proposed Treasury Regulations, which may be relied upon until final Treasury Regulations are finalized, currently eliminate FATCA withholding on payments of gross proceeds from sales or other dispositions of our common stock.

Prospective investors are encouraged to consult with their own tax advisors regarding the possible implications of FATCA on their investment in our common stock.

EACH PROSPECTIVE INVESTOR SHOULD CONSULT ITS OWN TAX ADVISOR REGARDING THE TAX CONSEQUENCES OF PURCHASING, HOLDING AND DISPOSING OF OUR COMMON STOCK, INCLUDING THE CONSEQUENCES OF ANY PROPOSED CHANGE IN APPLICABLE LAW, AS WELL AS TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL, NON-U.S. OR U.S. FEDERAL NON-INCOME TAX LAWS SUCH AS ESTATE AND GIFT TAX.

UNDERWRITING

We are offering the shares of common stock described in this prospectus through a number of underwriters. J.P. Morgan Securities LLC and Morgan Stanley & Co. LLC are acting as representatives of the underwriters. We have entered into an underwriting agreement with the underwriters, and subject to the terms and conditions of the underwriting agreement, we have agreed to sell to the underwriters, and each underwriter has severally agreed to purchase, at the public offering price less the underwriting discounts and commissions set forth on the cover page of this prospectus, the number of shares of common stock listed next to its name in the following table:

Name	Number of Shares
J.P. Morgan Securities LLC	2,467,500
Morgan Stanley & Co. LLC	2,303,000
Piper Sandler & Co.	1,250,200
Canaccord Genuity LLC	559,300
Total	6,580,000

The underwriters are committed to purchase all the common shares offered by us if they purchase any shares. The underwriting agreement also provides that if an underwriter defaults, the purchase commitments of non-defaulting underwriters may also be increased or the offering may be terminated.

The underwriters propose to offer the common shares directly to the public at the initial public offering price set forth on the cover page of this prospectus and to certain dealers at that price less a concession not in excess of $0.84 per share. Any such dealers may resell shares to certain other brokers or dealers at a discount of up to $0.28 per share from the initial public offering price. After the initial offering of the shares to the public, if all of the common shares are not sold at the initial public offering price, the underwriters may change the offering price and the other selling terms. Sales of any shares made outside of the United States may be made by affiliates of the underwriters.

The underwriters have an option to buy up to 987,000 additional shares of common stock from us to cover sales of shares by the underwriters which exceed the number of shares specified in the table above. The underwriters have 30 days from the date of this prospectus to exercise this option to purchase additional shares. If any shares are purchased with this option to purchase additional shares, the underwriters will purchase shares in approximately the same proportion as shown in the table above. If any additional shares of common stock are purchased, the underwriters will offer the additional shares on the same terms as those on which the shares are being offered.

The underwriting fee is equal to the public offering price per share of common stock less the amount paid by the underwriters to us per share of common stock. The underwriting fee is $1.40 per share. The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	Without option to purchase additional shares exercise	With full option to purchase additional shares exercise
Per Share	$ 1.40	$ 1.40
Total	$9,212,000	$ 10,593,800

We estimate that the total expenses of this offering, including registration, filing and listing fees, printing fees and legal and accounting expenses, but excluding the underwriting discounts and commissions, will be approximately $2,500,000. We have agreed to reimburse the underwriters for expenses of up to $45,000 related to clearance of this offering with the Financial Industry Regulatory Authority, or FINRA.

A prospectus in electronic format may be made available on the web sites maintained by one or more underwriters, or selling group members, if any, participating in the offering. The underwriters may agree to

allocate a number of shares to underwriters and selling group members for sale to their online brokerage account holders. Internet distributions will be allocated by the representatives to underwriters and selling group members that may make Internet distributions on the same basis as other allocations.

We have agreed that we will not (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend or otherwise transfer or dispose of, directly or indirectly, or submit to, or file with, the Securities and Exchange Commission a registration statement under the Securities Act relating to, any shares of our common stock or securities convertible into or exercisable or exchangeable for any shares of our common stock, or publicly disclose the intention to make any offer, sale, pledge, loan, disposition or filing, or (ii) enter into any swap or other arrangement that transfers all or a portion of the economic consequences associated with the ownership of any shares of common stock or any such other securities (regardless of whether any of these transactions are to be settled by the delivery of shares of common stock or such other securities, in cash or otherwise), in each case without the prior written consent of J.P. Morgan Securities LLC and Morgan Stanley & Co. LLC for a period of 180 days after the date of this prospectus, other than the shares of our common stock to be sold in this offering.

The restrictions on our actions, as described above, do not apply to certain transactions, including (i) the issuance of shares of common stock or securities convertible into or exercisable for shares of our common stock pursuant to the conversion or exchange of convertible or exchangeable securities or the exercise of warrants or options (including net exercise) or the settlement of RSUs (including net settlement), in each case outstanding on the date of the underwriting agreement and described in this prospectus; (ii) grants of stock options, stock awards, restricted stock, RSUs, or other equity awards and the issuance of shares of our common stock or securities convertible into or exercisable or exchangeable for shares of our common stock (whether upon the exercise of stock options or otherwise) to our employees, officers, directors, advisors, or consultants pursuant to the terms of an equity compensation plan in effect as of the closing of this offering and described in this prospectus, provided that such recipients enter into a lock-up agreement with the underwriters.

Our directors, executive officers and all of our shareholders (such persons, the “lock-up parties”) have entered into lock-up agreements with the underwriters prior to the commencement of this offering pursuant to which each lock-up party, with limited exceptions, for a period of 180 days after the date of this prospectus (such period, the “restricted period”), may not (and may not cause any of their direct or indirect affiliates to), without the prior written consent of J.P. Morgan Securities LLC and Morgan Stanley & Co. LLC, (1) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend or otherwise transfer or dispose of, directly or indirectly, any shares of our common stock or any securities convertible into or exercisable or exchangeable for our common stock (including, without limitation, common stock or such other securities which may be deemed to be beneficially owned by such lock-up parties in accordance with the rules and regulations of the SEC and securities which may be issued upon exercise of a stock option or warrant (collectively with the common stock, the “lock-up securities”)), (2) enter into any hedging, swap or other agreement or transaction that transfers, in whole or in part, any of the economic consequences of ownership of the lock-up securities, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of lock-up securities, in cash or otherwise, (3) make any demand for, or exercise any right with respect to, the registration of any lock-up securities, or (4) publicly disclose the intention to do any of the foregoing. Such persons or entities have further acknowledged that these undertakings preclude them from engaging in any hedging or other transactions or arrangements (including, without limitation, any short sale or the purchase or sale of, or entry into, any put or call option, or combination thereof, forward, swap or any other derivative transaction or instrument, however described or defined) designed or intended, or which could reasonably be expected to lead to or result in, a sale or disposition or transfer (by any person or entity, whether or not a signatory to such agreement) of any economic consequences of ownership, in whole or in part, directly or indirectly, of any lock-up securities, whether any such transaction or arrangement (or instrument provided for thereunder) would be settled by delivery of lock-up securities, in cash or otherwise.

The restrictions described in the immediately preceding paragraph and contained in the lock-up agreements between the underwriters and the lock-up parties do not apply, subject in certain cases to various conditions, to certain transactions, including (a) transfers of lock-up securities: (i) as bona fide gifts,

or for bona fide estate planning purposes, (ii) by will or intestacy, (iii) to any trust for the direct or indirect benefit of the lock-up party or any immediate family member, (iv) to a partnership, limited liability company or other entity of which the lock-up party and its immediate family members are the legal and beneficial owner of all of the outstanding equity securities or similar interests, (v) to a nominee or custodian of a person or entity to whom a disposition or transfer would be permissible under clauses (i) through (iv), (vi) in the case of a corporation, partnership, limited liability company, trust or other business entity, (A) to another corporation, partnership, limited liability company, trust or other business entity that is an affiliate of the lock-up party, or to any investment fund or other entity controlling, controlled by, managing or managed by or under common control with the lock-up party or its affiliates or (B) as part of a distribution to members or stockholders of the lock-up party; (vii) by operation of law, (viii) to us from an employee upon death, disability or termination of employment of such employee, (ix) as part of a sale of lock-up securities acquired in open market transactions after the completion of this offering, (x) to us in connection with the vesting, settlement or exercise of restricted stock units, options, warrants or other rights to purchase shares of our common stock (including "net" or "cashless" exercise), including for the payment of exercise price and tax and remittance payments, or (xi) pursuant to a bona fide third-party tender offer, merger, consolidation or other similar transaction approved by our board of directors and made to all shareholders involving a change in control, provided that if such transaction is not completed, all such lock-up securities would remain subject to the restrictions in the immediately preceding paragraph; (b) exercise of the options, settlement of RSUs or other equity awards, or the exercise of warrants granted pursuant to plans described in in this prospectus, provided that any lock-up securities received upon such exercise, vesting or settlement would be subject to restrictions similar to those in the immediately preceding paragraph; (c) the conversion of outstanding preferred stock, warrants to acquire preferred stock, or convertible securities into shares of our common stock or warrants to acquire shares of our common stock, provided that any common stock or warrant received upon such conversion would be subject to restrictions similar to those in the immediately preceding paragraph.

J.P. Morgan Securities LLC and Morgan Stanley & Co. LLC, in their sole discretion, may release the securities subject to any of the lock-up agreements with the underwriters described above, in whole or in part at any time.

Record holders of our securities are typically the parties to the lock-up agreements with the underwriters and the market standoff agreements with us referred to above, while holders of beneficial interests in our shares who are not also record holders in respect of such shares are not typically subject to any such agreements or other similar restrictions. Accordingly, we believe that certain holders of beneficial interests who are not record holders and are not bound by market standoff or lock-up agreements could enter into transactions with respect to those beneficial interests that negatively impact our stock price. In addition, a shareholder who is neither subject to a market standoff agreement with us nor a lock-up agreement with the underwriters may be able to sell, short sell, transfer, hedge, pledge, lend or otherwise dispose of or attempt to sell short sell, transfer, hedge, pledge, lend or otherwise dispose of, their equity interests at any time after the closing of this offering.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act of 1933.

Our common stock has been approved for listing on the Nasdaq Global Select Market under the symbol "AKYA."

In connection with this offering, the underwriters may engage in stabilizing transactions, which involves making bids for, purchasing and selling shares of common stock in the open market for the purpose of preventing or retarding a decline in the market price of the common stock while this offering is in progress. These stabilizing transactions may include making short sales of common stock, which involves the sale by the underwriters of a greater number of shares of common stock than they are required to purchase in this offering, and purchasing shares of common stock on the open market to cover positions created by short sales. Short sales may be "covered" shorts, which are short positions in an amount not greater than the underwriters' option to purchase additional shares referred to above, or may be "naked" shorts, which are short positions in excess of that amount. The underwriters may close out any covered short position either by exercising their option to purchase additional shares, in whole or in part, or by purchasing shares in the open market. In making this determination, the underwriters will consider, among other things, the

price of shares available for purchase in the open market compared to the price at which the underwriters may purchase shares through the option to purchase additional shares. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market that could adversely affect investors who purchase in this offering. To the extent that the underwriters create a naked short position, they will purchase shares in the open market to cover the position.

The underwriters have advised us that, pursuant to Regulation M of the Securities Act of 1933, they may also engage in other activities that stabilize, maintain or otherwise affect the price of the common stock, including the imposition of penalty bids. This means that if the representatives of the underwriters purchase common stock in the open market in stabilizing transactions or to cover short sales, the representatives can require the underwriters that sold those shares as part of this offering to repay the underwriting discount received by them.

These activities may have the effect of raising or maintaining the market price of the common stock or preventing or retarding a decline in the market price of the common stock, and, as a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. If the underwriters commence these activities, they may discontinue them at any time. The underwriters may carry out these transactions on Nasdaq, in the over-the-counter market or otherwise.

Prior to this offering, there has been no public market for our common stock. The initial public offering price will be determined by negotiations between us and the representatives of the underwriters. In determining the initial public offering price, we and the representatives of the underwriters expect to consider a number of factors including:

- the information set forth in this prospectus and otherwise available to the representatives;
- our prospects and the history and prospects for the industry in which we compete;
- an assessment of our management;
- our prospects for future earnings;
- the general condition of the securities markets at the time of this offering;
- the recent market prices of, and demand for, publicly traded common stock of generally comparable companies; and
- other factors deemed relevant by the underwriters and us.

Neither we nor the underwriters can assure investors that an active trading market will develop for our common shares, or that the shares will trade in the public market at or above the initial public offering price.

Other Relationships

The underwriters and their respective affiliates are full service financial institutions engaged in various activities, which may include sales and trading, commercial and investment banking, advisory, investment management, investment research, principal investment, hedging, market making, brokerage and other financial and non-financial activities and services.

Certain of the underwriters and their affiliates have provided in the past to us and our affiliates and may provide from time to time in the future certain commercial banking, financial advisory, investment banking and other services for us and such affiliates in the ordinary course of their business, for which they have received and may continue to receive customary fees and commissions. In addition, from time to time, certain of the underwriters and their affiliates may effect transactions for their own account or the account of customers, and hold on behalf of themselves or their customers, long or short positions in our debt or equity securities or loans, and may do so in the future.

In particular, one of our directors, Thomas P. Schnettler, is a principal of Piper Sandler Merchant Banking Fund II, L.P., which is an affiliate of Piper Sandler & Co., an underwriter participating in this offering. See also “Certain Relationships and Related-Person Transactions — Director Affiliations” and “Certain Relationships and Related-Person Transactions — Agreements with our Stockholders.”

Selling Restrictions

Other than in the United States, no action has been taken by us or the underwriters that would permit a public offering of the securities offered by this prospectus in any jurisdiction where action for that purpose is required. The securities offered by this prospectus may not be offered or sold, directly or indirectly, nor may this prospectus or any other offering material or advertisements in connection with the offer and sale of any such securities be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons into whose possession this prospectus comes are advised to inform themselves about and to observe any restrictions relating to the offering and the distribution of this prospectus. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any securities offered by this prospectus in any jurisdiction in which such an offer or a solicitation is unlawful.

Australia

No placement document, prospectus, product disclosure statement or other disclosure document has been lodged with the Australian Securities and Investments Commission in relation to the offering. This prospectus does not constitute a prospectus, product disclosure statement or other disclosure document under the Corporations Act, and does not purport to include the information required for a prospectus, product disclosure statement or other disclosure document under the Corporations Act.

Any offer in Australia of the common shares may only be made to persons, or to the Exempt Investors, who are "sophisticated investors" (within the meaning of section 708(8) of the Corporations Act), "professional investors" (within the meaning of section 708(11) of the Corporations Act) or otherwise pursuant to one or more exemptions contained in section 708 of the Corporations Act so that it is lawful to offer the common shares without disclosure to investors under Chapter 6D of the Corporations Act.

The common shares applied for by Exempt Investors in Australia must not be offered for sale in Australia in the period of 12 months after the date of allotment under the offering, except in circumstances where disclosure to investors under Chapter 6D of the Corporations Act would not be required pursuant to an exemption under section 708 of the Corporations Act or otherwise or where the offer is pursuant to a disclosure document which complies with Chapter 6D of the Corporations Act. Any person acquiring shares must observe such Australian on-sale restrictions.

This prospectus contains general information only and does not take into account the investment objectives, financial situation or particular needs of any particular person. It does not contain any securities recommendations or financial product advice. Before making an investment decision, investors need to consider whether the information in this prospectus is appropriate for their needs, objectives and circumstances, and, if necessary, seek expert advice on those matters.

Bermuda

Shares may be offered or sold in Bermuda only in compliance with the provisions of the Investment Business Act of 2003 of Bermuda which regulates the sale of securities in Bermuda. Additionally, non-Bermudian persons (including companies) may not carry on or engage in any trade or business in Bermuda unless such persons are permitted to do so under applicable Bermuda legislation.

Canada

The shares may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the shares must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws. Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's

province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 Underwriting Conflicts (NI 33-105), the representatives are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

China

This prospectus will not be circulated or distributed in the People's Republic of China, or PRC, and the shares will not be offered or sold to any person for re-offering or resale directly or indirectly to any residents of the PRC, except pursuant to any applicable laws and regulations of the PRC. Neither this prospectus nor any advertisement or other offering material may be distributed or published in the PRC, except under circumstances that will result in compliance with applicable laws and regulations.

Dubai International Financial Centre

This prospectus relates to an Exempt Offer in accordance with the Markets Rules 2012 of the Dubai Financial Services Authority, or the DFSA. This prospectus is intended for distribution only to persons of a type specified in the Markets Rules 2012 of the DFSA. It must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this prospectus nor taken steps to verify the information set forth herein and has no responsibility for this document. The securities to which this document relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the securities offered should conduct their own due diligence on the securities. If you do not understand the contents of this prospectus you should consult an authorized financial advisor.

In relation to its use in the Dubai International Financial Centre, or the DIFC, this prospectus is strictly private and confidential and is being distributed to a limited number of investors and must not be provided to any person other than the original recipient and may not be reproduced or used for any other purpose. The interests in the securities may not be offered or sold directly or indirectly to the public in the DIFC.

European Economic Area

In relation to each member state of the European Economic Area (each, a "Relevant State"), no securities have been offered or will be offered pursuant to the offering to the public in that Relevant State prior to the publication of a prospectus in relation to the securities which has been approved by the competent authority in that Relevant State or, where appropriate, approved in another Relevant State and notified to the competent authority in that Relevant State, all in accordance with the Prospectus Regulation, except that offers of the securities may be made to the public in that Relevant State at any time under the following exemptions under the Prospectus Regulation:

(a) to any legal entity which is a qualified investor as defined under the Prospectus Regulation;

(b) to fewer than 150 natural or legal persons (other than qualified investors as defined under the Prospectus Regulation), subject to obtaining the prior consent of the representative; or

(c) in any other circumstances falling within Article 1(4) of the Prospectus Regulation,

provided that no such offer of the securities shall require us or any representative to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation.

For the purposes of this provision, the expression an "offer to the public" in relation to the securities in any Relevant State means the communication in any form and by any means of sufficient information on the terms of the offer and any securities to be offered so as to enable an investor to decide to purchase or subscribe for any securities, and the expression "Prospectus Regulation" means Regulation (EU) 2017/1129.

Hong Kong

The shares may not be offered or sold by means of any document other than (i) in circumstances that do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong), or (ii) to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder, or (iii) in other circumstances that do not result in the document being a "prospectus" within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong), and no advertisement, invitation or document relating to the shares may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the laws of Hong Kong) other than with respect to shares that are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder.

Israel

In the State of Israel, this prospectus shall not be regarded as an offer to the public to purchase shares of our common stock under the Israeli Securities Law, 5728 — 1968, which requires a prospectus to be published and authorized by the Israel Securities Authority, if it complies with certain provisions of Section 15 of the Israeli Securities Law, 5728 — 1968, including, inter alia, if: (i) the offer is made, distributed or directed to not more than 35 investors, subject to certain conditions, or the Addressed Investors; or (ii) the offer is made, distributed or directed to certain qualified investors defined in the First Addendum of the Israeli Securities Law, 5728 — 1968, subject to certain conditions, or the Qualified Investors. The Qualified Investors shall not be taken into account in the count of the Addressed Investors and may be offered to purchase securities in addition to the 35 Addressed Investors. We have not and will not take any action that would require us to publish a prospectus in accordance with and subject to the Israeli Securities Law, 5728 — 1968. We have not and will not distribute this prospectus or make, distribute or direct an offer to subscribe for our common stock to any person within the State of Israel, other than to Qualified Investors and up to 35 Addressed Investors.

Japan

The securities have not been and will not be registered under the Financial Instruments and Exchange Law of Japan, or the Financial Instruments and Exchange Law, and each underwriter has agreed that it will not offer or sell any securities, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan (which term, as used in this prospectus means any person resident in Japan, including any corporation or other entity organized under the laws of Japan) or to others for re-offering or resale, directly or indirectly, in Japan or to a resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Law and any other applicable laws, regulations and ministerial guidelines of Japan.

Korea

The shares have not been and will not be registered under the Financial Investments Services and Capital Markets Act of Korea and the decrees and regulations thereunder, or the FSCMA, and the shares have been and will be offered in Korea as a private placement under the FSCMA. None of the shares may be offered, sold or delivered directly or indirectly, or offered or sold to any person for re-offering or resale, directly or indirectly, in Korea or to any resident of Korea except pursuant to the applicable laws and regulations of Korea, including the FSCMA and the Foreign Exchange Transaction Law of Korea and the decrees and regulations thereunder, or the FETL. The shares have not been listed on any of securities exchanges in the world including, without limitation, the Korea Exchange in Korea. Furthermore, the purchaser of the shares shall comply with all applicable regulatory requirements (including but not limited to requirements under the FETL) in connection with the purchase of the shares. By the purchase of the shares, the relevant holder thereof will be deemed to represent and warrant that if it is in Korea or is a resident of Korea, it purchased the shares pursuant to the applicable laws and regulations of Korea.

Saudi Arabia

This prospectus may not be distributed in the Kingdom of Saudi Arabia, except to such persons as are permitted under the Offers of Securities Regulations as issued by the board of the Saudi Arabian Capital Market Authority, or the CMA, pursuant to resolution number 2-11-2004 dated 4 October 2004 as amended by resolution number 1-28-2008, as amended, or the CMA Regulations. The CMA does not make any representation as to the accuracy or completeness of this prospectus and expressly disclaims any liability whatsoever for any loss arising from, or incurred in reliance upon, any part of this document. Prospective purchasers of the securities offered hereby should conduct their own due diligence on the accuracy of the information relating to the securities. If you do not understand the contents of this prospectus, you should consult an authorized financial adviser.

Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of Non-CIS Securities may not be circulated or distributed, nor may the Non-CIS Securities be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA"), (ii) to a relevant person pursuant to Section 275(1), or any person pursuant to Section 275(1A), and in accordance with the conditions specified in Section 275, of the SFA, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the Non-CIS Securities are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

(a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

(b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor, securities (as defined in Section 239(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the Non-CIS Securities pursuant to an offer made under Section 275 of the SFA except:

    (a) to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;

    (b) where no consideration is or will be given for the transfer;

    (c) where the transfer is by operation of law;

    (d) as specified in Section 276(7) of the SFA; or

    (e) as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018 of Singapore.

Singapore Securities and Futures Act Product Classification: Solely for the purposes of our obligations pursuant to sections 309B(1)(a) and 309B(1)(c) of the SFA, we have determined, and hereby notify all relevant persons (as defined in Section 309A of the SFA), that the common shares are "prescribed capital markets products" (as defined in the Securities and Futures (Capital Markets Products) Regulations 2018) and Excluded Investment Products (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAA-N16: Notice on Recommendations on Investment Products).

South Africa

Due to restrictions under the securities laws of South Africa, no "offer to the public" (as such term is defined in the South African Companies Act, No. 71 of 2008, or the South African Companies Act, (as amended or re-enacted)) is being made in South Africa in connection with the issue of the shares. Accordingly, this prospectus does not, nor is it intended to, constitute a "registered prospectus" (as that term is defined in the South African Companies Act) prepared and registered under the South African Companies Act and has not been approved by, and/or filed with, the South African Companies and Intellectual Property Commission or any other regulatory authority in South Africa. The shares are not offered, and the offer shall not be transferred, sold, renounced or delivered, in South Africa or to a person with an address in South Africa, unless one or other of the following exemptions stipulated in section 96 (1) applies:

Section 96(1)(a)	the offer, transfer, sale, renunciation or delivery is to: (i) persons whose ordinary business, or part of whose ordinary business, is to deal in securities, as principal or agent; (ii) the South African Public Investment Corporation; (iii) persons or entities regulated by the Reserve Bank of South Africa; (iv) authorized financial service providers under South African law; (v) financial institutions recognized as such under South African law; (vi) a wholly-owned subsidiary of any person or entity contemplated in (c), (d) or (e), acting as agent in the capacity of an authorized portfolio manager for a pension fund, or as manager for a collective investment scheme (in each case duly registered as such under South African law); or (vii) any combination of the person in (i) to (vi); or
Section 96(1)(b)	the total contemplated acquisition cost of the securities, for any single addressee acting as principal is equal to or greater than ZAR1,000,000 or such higher amount as may be promulgated by notice in the Government Gazette of South Africa pursuant to section 96(2)(a) of the South African Companies Act.

Information made available in this prospectus should not be considered as "advice" as defined in the South African Financial Advisory and Intermediary Services Act, 2002.

Switzerland

This prospectus is not intended to constitute an offer or solicitation to purchase or invest in our securities. The securities may not be publicly offered, directly or indirectly, in Switzerland within the meaning of the Swiss Financial Services Act ("FinSA"), and no application has or will be made to admit the securities to trading on any trading venue (exchange or multilateral trading facility) in Switzerland. Neither this prospectus nor any other offering or marketing material relating to the securities constitutes a prospectus pursuant to the FinSA, and neither this prospectus nor any other offering or marketing material relating to the securities may be publicly distributed or otherwise made publicly available in Switzerland.

Taiwan

The shares have not been and will not be registered with the Financial Supervisory Commission of Taiwan pursuant to relevant securities laws and regulations and may not be sold, issued or offered within Taiwan through a public offering or in circumstances which constitutes an offer within the meaning of the Securities and Exchange Act of Taiwan that requires a registration or approval of the Financial Supervisory Commission of Taiwan. No person or entity in Taiwan has been authorized to offer, sell, give advice regarding or otherwise intermediate the offering and sale of the shares in Taiwan.

United Arab Emirates

This prospectus relates to an Exempt Offer in accordance with the Offered Securities Rules of the Dubai Financial Services Authority, or DFSA. This prospectus is intended for distribution only to persons

of a type specified in the Offered Securities Rules of the DFSA. It must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this prospectus nor taken steps to verify the information set forth herein and has no responsibility for this prospectus. The shares to which this prospectus relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the shares offered should conduct their own due diligence on the shares. If you do not understand the contents of this prospectus, you should consult an authorized financial advisor.

United Kingdom

In relation to the United Kingdom, no shares of common stock have been offered or will be offered pursuant to this offering to the public in the United Kingdom prior to the publication of a prospectus in relation to the shares that either (i) has been approved by the Financial Conduct Authority, or (ii) is to be treated as if it had been approved by the Financial Conduct Authority in accordance with the transitional provision in Regulation 74 of the Prospectus (Amendment etc.) (EU Exit) Regulations 2019, except that offers of shares may be made to the public in the United Kingdom at any time under the following exemptions under the UK Prospectus Regulation:

- to any legal entity which is a qualified investor as defined in Article 2 of the UK Prospectus Regulation;
- to fewer than 150 natural or legal persons (other than qualified investors as defined in Article 2 of the UK Prospectus Regulation); or
- in any other circumstances falling within section 86 of the Financial Services and Markets Act 2000 ("**FSMA**"),

provided that no such offer of shares shall require the Issuer or any representative to publish a prospectus pursuant to section 85 of the FSMA or supplement a prospectus pursuant to Article 23 of the UK Prospectus Regulation.

For the purposes of this provision, the expression an "offer to the public" in relation to any shares in any relevant state means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase or subscribe for any shares, and the expression "UK Prospectus Regulation" means Regulation (EU) 2017/1129 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018.

We have not authorized and do not authorize the making of any offer of shares through any financial intermediary on their behalf, other than offers made by the underwriters with a view to the final placement of the shares as contemplated in this prospectus. Accordingly, no purchaser of the shares, other than the underwriters, is authorized to make any further offer of the shares on behalf of us or the underwriters.

In addition, in the United Kingdom, this document is being distributed only to, and is directed only at, and any offer subsequently made may only be directed at persons who are "qualified investors" (as defined in Article 2 of the UK Prospectus Regulation) (i) who have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended (the "Order") and/or (ii) who are high net worth companies (or persons to whom it may otherwise be lawfully communicated) falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as "relevant persons") or otherwise in circumstances which have not resulted and will not result in an offer to the public of the securities in the United Kingdom within the meaning of the FSMA.

Any person in the United Kingdom that is not a relevant person should not act or rely on the information included in this document or use it as basis for taking any action. In the United Kingdom, any investment or investment activity that this document relates to may be made or taken exclusively by relevant persons.

LEGAL MATTERS

DLA Piper LLP (US), San Diego, California will pass upon the validity of the shares of our common stock being offered by this prospectus. The validity of the shares of common stock offered by this prospectus will be passed upon for the underwriters by Davis Polk & Wardwell LLP, New York, New York.

EXPERTS

The consolidated financial statements of Akoya Biosciences, Inc. as of and for the years ended December 31, 2020 and 2019 have been audited by RSM US LLP, an independent registered public accounting firm, as stated in their report thereon and included in this Prospectus and Registration Statement in reliance upon such report and upon the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the shares of our common stock offered by this prospectus. This prospectus, which constitutes a part of the registration statement, does not contain all of the information set forth in the registration statement, some of which is contained in exhibits to the registration statement as permitted by the rules and regulations of the SEC. For further information with respect to us and our common stock, we refer you to the registration statement, including the exhibits filed as a part of the registration statement. Statements contained in this prospectus concerning the contents of any contract or any other document are not necessarily complete. If a contract or document has been filed as an exhibit to the registration statement, please see the copy of the contract or document that has been filed. Each statement in this prospectus relating to a contract or document filed as an exhibit is qualified in all respects by the filed exhibit. The SEC maintains a website that contains reports, proxy statements and other information about issuers, like us, that file electronically with the SEC. The address of that website is www.sec.gov.

As a result of this offering, we will become subject to the information and reporting requirements of the Exchange Act and, in accordance with this law, will file periodic reports, proxy statements and other information with the SEC. These periodic reports, proxy statements and other information will be available for inspection at the website of the SEC referred to above. We also maintain a website at www.akoyabio.com where, upon closing of this offering, you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. The information on or that can be accessed through our website is not a part of this prospectus and the inclusion of our website address in this prospectus is an inactive textual reference only.

AKOYA BIOSCIENCES, INC. AND SUBSIDIARY

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Akoya Biosciences, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Akoya Biosciences, Inc. and its subsidiary (the Company) as of December 31, 2020 and 2019, the related consolidated statements of operations, redeemable convertible preferred stock and stockholders' deficit and cash flows for the years then ended, and the related notes to the consolidated financial statements (collectively, the financial statements). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

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 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/ RSM US LLP

We have served as the Company's auditor since 2019.

Boston, Massachusetts
March 12, 2021 except with respect to the matters
discussed in Note 17, as to which the date is April 12, 2021.

AKOYA BIOSCIENCES, INC. AND SUBSIDIARY

CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share data)

	December 31,		Pro Forma December 31, 2020 (unaudited)
	2020	2019	
Assets			
Current assets			
Cash and cash equivalents	$ 17,006	$ 11,636	$ 17,006
Certificates of deposit	—	10,023	—
Accounts receivable, net	6,470	13,167	6,470
Inventories, net	4,263	4,093	4,263
Prepaid expenses and other current assets	957	1,955	957
Total current assets	28,696	40,874	28,696
Property and equipment, net	5,528	4,983	5,528
Restricted cash – long term	502	501	502
Demo inventory, net	1,494	475	1,494
Intangible assets, net	22,714	24,137	22,714
Goodwill	18,262	18,262	18,262
Other assets	464	181	464
Total assets	$ 77,660	$ 89,413	$ 77,660
Liabilities and stockholders' deficit			
Current liabilities			
Accounts payable	$ 5,074	$ 8,119	$ 5,074
Accrued expenses and other current liabilities	7,015	8,581	7,015
Current portion of capital lease obligations	197	80	197
Deferred revenue	3,844	4,375	3,844
Current portion of long-term debt	1,032	—	1,032
Total current liabilities	17,162	21,155	17,162
Deferred revenue, net of current portion	1,008	905	1,008
Long-term debt, net of current portion and debt discount	33,488	24,466	33,488
Deferred tax liability, net	170	163	170
Capital lease obligations, net of current portion	277	205	277
Warrant liability	490	192	—
Contingent consideration liability (Note 5), net of current portion	6,984	8,139	6,984
Total liabilities	59,579	55,225	59,089
Redeemable Convertible Preferred Stock:			
Series B Redeemable Convertible Preferred Stock, $0.00001 par value; 13,715,330 shares authorized, issued and outstanding at December 31, 2020 and 2019 (preference in liquidation of $11,500 at December 31, 2020)	11,500	10,780	—
Series C Redeemable Convertible Preferred Stock, $0.00001 par value; 26,732,361 shares authorized, issued and outstanding at December 31, 2020 and 2019 (preference in liquidation of $30,107 at December 31, 2020)	30,107	28,067	—
Series D Redeemable Convertible Preferred Stock, $0.00001 par value; 16,758,996 shares authorized; 16,390,217 shares issued and outstanding at December 31, 2020 and 2019 (preference in liquidation of $27,500 at December 31, 2020)	27,500	25,500	—
Total redeemable convertible preferred stock	69,107	64,347	—
Stockholders' deficit:			
Series A Convertible Preferred Stock, $0.00001 par value; 5,013,333 shares authorized, issued and outstanding (preference in liquidation of $1,253) at December 31, 2020 and 2019	1,253	1,253	—
Class A Common Stock, $0.00001 par value; 62,220,020 shares authorized; 0 shares issued and outstanding at December 31, 2020 and 2019	—	—	2
Class B Common Stock, $0.00001 par value; 16,822,202 shares authorized; 2,563,765 and 2,286,872 issued and outstanding at December 31, 2020 and 2019, respectively	1	1	—
Additional paid in capital	—	—	70,849
Accumulated deficit	(52,280)	(31,413)	(52,280)
Total stockholders' deficit	(51,026)	(30,159)	18,571
Total liabilities, redeemable convertible preferred stock, and stockholders' deficit	$ 77,660	$ 89,413	$ 77,660

See accompanying notes to consolidated financial statements.

AKOYA BIOSCIENCES, INC. AND SUBSIDIARY

CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands except share & per share data)

	Year ended	
	December 31, 2020	December 31, 2019
Revenue:		
Product revenue	$ 33,438	$ 36,344
Service and other revenue	9,005	5,892
Total revenue	42,443	42,236
Cost of goods sold:		
Cost of product revenue	$ 12,584	$ 15,447
Cost of service and other revenue	3,951	2,126
Total cost of goods sold	$ 16,535	$ 17,573
Gross profit	$ 25,908	$ 24,663
Operating expenses:		
Selling, general and administrative	23,982	26,351
Research and development	9,603	8,761
Change in fair value of contingent consideration	519	(1,201)
Depreciation and amortization	3,815	3,055
Total operating expenses	37,919	36,966
Loss from operations	(12,011)	(12,303)
Other income (expense):		
Interest expense, net	(2,723)	(1,881)
Change in fair value of warrant liability	(298)	—
Loss on extinguishment of debt	(1,671)	—
Other income (expense), net	39	(373)
Loss before provision for income taxes	$ (16,664)	$ (14,557)
Provision for income taxes	(42)	(194)
Net loss	(16,706)	(14,751)
Net loss per share attributable to common stockholders, basic and diluted	$ (9.18)	$ (8.04)
Weighted-average shares outstanding, basic and diluted	2,370,574	2,276,048
Pro forma net loss per share attributable to common stockholders, basic and diluted	$ (0.75)	
Pro forma weighted-average shares outstanding, basic and diluted	28,916,153	

See accompanying notes to consolidated financial statements.

AKOYA BIOSCIENCES, INC. AND SUBSIDIARY

CONSOLIDATED STATEMENTS OF REDEEMABLE CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT
(in thousands, except share and per share data)

	Series B Redeemable Convertible Preferred Stock		Series C Redeemable Convertible Preferred Stock		Series D Redeemable Convertible Preferred Stock		Series A Convertible Preferred Stock		Class B Common Stock		Additional Paid in Capital	Accumulated Deficit	Total Stockholders' deficit
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount			
Balance at December 31, 2018	13,715,330	$10,060	26,732,361	$26,027	—	—	5,013,333	$1,253	2,272,613	$ 1	—	$(13,383)	$(12,129)
Issuance of Series D Preferred Stock, net of issuance costs of $176	—	—	—	—	16,390,217	24,824	—	—	—	—	—	—	0
Accretion of redeemable convertible preferred stock to redemption value	—	—	—	—	—	176	—	—	—	—	—	(176)	(176)
Exercise of stock options	—	—	—	—	—	—	—	—	14,259	—	4	—	4
Accrued dividends	—	720	—	2,040	—	500	—	—	—	—	(157)	(3,103)	(3,260)
Net loss	—	—	—	—	—	—	—	—	—	—	—	(14,751)	(14,751)
Stock-based compensation	—	—	—	—	—	—	—	—	—	—	153	—	153
Balance at December 31, 2019	**13,715,330**	**$10,780**	**26,732,361**	**$28,067**	**16,390,217**	**$25,500**	**5,013,333**	**$1,253**	**2,286,872**	**$ 1**	**$ —**	**$(31,413)**	**$(30,159)**
Exercise of stock options	—	—	—	—	—	—	—	—	276,893	—	122	—	122
Accrued dividends	—	720	—	2,040	—	2,000	—	—	—	—	(599)	(4,161)	(4,760)
Net loss	—	—	—	—	—	—	—	—	—	—	—	(16,706)	(16,706)
Stock-based compensation	—	—	—	—	—	—	—	—	—	—	477	—	477
Balance at December 31, 2020	**13,715,330**	**$11,500**	**26,732,361**	**$30,107**	**16,390,217**	**$27,500**	**5,013,333**	**$1,253**	**2,563,765**	**$ 1**	**$ —**	**$(52,280)**	**$(51,026)**

See accompanying notes to consolidated financial statements.

AKOYA BIOSCIENCES INC., AND SUBSIDIARY

CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Year ended	
	December 31, 2020	December 31, 2019
Operating activities		
Net loss	$(16,706)	$(14,751)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	3,815	3,055
Non-cash interest expense	316	74
Stock-based compensation expense	477	153
Paid-in-kind interest	366	115
Deferred tax liability	7	156
Change in fair value of contingent consideration	519	(1,201)
Change in fair value of warrant liability	298	—
Loss on extinguishment of debt	1,671	—
Changes in operating assets and liabilities:		
Accounts receivable, net	6,697	(3,373)
Prepaid expenses and other assets	56	(1,819)
Inventories, net	(684)	(4,007)
Accounts payable	(3,045)	(49)
Accrued expenses and other liabilities	(202)	4,643
Deferred revenue	(428)	3,228
Net cash used in operating activities	(6,843)	(13,776)
Investing activities		
Purchases of certificates of deposits	—	(10,000)
Maturity of certificates of deposits	10,168	—
Interest income reinvested in certificates of deposit	(145)	(23)
Purchases of property and equipment	(3,295)	(2,869)
Net cash provided by (used in) investing activities	6,728	(12,892)
Financing activities		
Proceeds from issuance of Series D preferred stock, net of issuance costs	—	24,824
Proceeds from stock option exercises	122	4
Principal payments on capital leases	(191)	(41)
Proceeds from debt	34,976	30,000
Principal payments of debt	(25,000)	(25,000)
Payments of debt issuance costs	(532)	(531)
Payments of debt extinguishment costs	(1,262)	—
Payments of contingent consideration	(2,627)	(695)
Net cash provided by financing activities	5,486	28,561
Net increase in cash, cash equivalents, and restricted cash	5,371	1,893
Cash, cash equivalents, and restricted cash at beginning of year	12,137	10,244
Cash, cash equivalents, and restricted cash at end of year	17,508	$ 12,137
Supplemental disclosures of cash flow information		
Cash paid for interest	$ 2,246	$ 1,790
Cash paid for income taxes	—	$ —
Supplemental disclosures of non-cash activities		
Purchases of property and equipment included in accounts payable and accrued expenses	$ 420	$ 937
Accretion of dividends on Series B, C, and D Preferred Stock	$ 4,760	$ 3,260
Accretion of redeemable convertible preferred stock to redemption value	$ —	$ 176
Warrants issued to lender	$ —	$ 192

See accompanying notes to consolidated financial statements.

AKOYA BIOSCIENCES INC., AND SUBSIDIARY

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Amounts in thousands, except share and per share data)

(1) The company and basis of presentation

Description of business

Akoya Biosciences, Inc. ("Akoya" or the "Company") is a life sciences technology company, founded on November 13, 2015 as a Delaware corporation with operations based in Marlborough, Massachusetts and Menlo Park, California, delivering spatial biology solutions focused on transforming discovery and clinical research. Spatial biology refers to an evolving technology that enables academic and biopharma scientists to detect and map the distribution of cell types and biomarkers across whole tissue samples at single cell resolution, enabling advancements in their understanding of disease progression and patient response to therapy. Through Akoya's CODEX and Phenoptics platforms, reagents, software and services, the Company offers end-to-end solutions to perform tissue analysis and spatial phenotyping across the full continuum, from discovery through translational and clinical research.

On September 28, 2018, the Company acquired the commercial Phenoptics division of PerkinElmer, Inc. ("PKI") for multiplex immunofluorescence, with the aim of providing consumers with a full suite of end-to-end solutions for high parameter tissue analysis. The Phenoptics technology offers pathology solutions for cancer immunology and immunotherapy research, including advanced multiplex immunochemistry staining kits, multispectral imaging and whole side scanning instruments, and image analysis software. The Company's combined portfolio of complementary technologies aims to fuel groundbreaking advancements in cancer immunology, immunotherapy, neurology and a wide range of other applications. The Company sells into three main regions across the world: North America, Asia-Pacific ("APAC"), and Europe-Middle East-Africa ("EMEA").

Liquidity and going concern

At December 31, 2020, the Company has cash and cash equivalents of $17,006 and an accumulated deficit of $52,280. The future success of the Company is dependent on its ability to successfully commercialize its products, successfully launch future products, obtain additional capital and ultimately attain profitable operations. The Company has funded its operations primarily through its preferred stock issuances and debt financing arrangements.

The Company is subject to a number of risks similar to other newly commercial life sciences companies, including, but not limited to, development and market acceptance of the Company's product candidates, development by its competitors of new technological innovations, protection of proprietary technology, and raising additional capital.

After its acquisition of the Phenoptics division of PKI, the Company has incurred significant commercialization expenses related to product sales, marketing, manufacturing and distribution. The Company may seek to fund its operations through private equity or debt financings, as well as other sources. However, the Company may be unable to raise additional funds or enter into such other arrangements when needed, on favorable terms, or at all. The Company's failure to raise capital or enter into such other arrangements if and when needed would have a negative impact on the Company's business, results of operations, financial condition and the Company's ability to develop and commercialize existing and future products.

In October 2020, the Company entered into a new debt financing arrangement with Midcap Trust, providing for aggregate proceeds of $32,500. $5,000 is available to be drawn upon from March 31, 2021, through June 30, 2021.

The Company has incurred losses since its inception and has used cash from operations of $6,843 during the year ended December 31, 2020. However, we believe that our existing cash and cash equivalents, together with the $5,000 in existing availability under the financing arrangement with Midcap Trust, which is available to be drawn between March 31, 2021 to June 30, 2021, will be adequate to satisfy our current operating plans for at least the next twelve months from the issuance of these financial statements.

The accompanying consolidated financial statements have been prepared on a going concern basis, which contemplates the realization of assets and satisfaction of liabilities in the ordinary course of business. The financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might result from the outcome of the uncertainties described above.

(2) Summary of significant accounting policies

Principles of consolidation

The Company's financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America ("GAAP"). Any reference in these notes to applicable guidance is meant to refer to the authoritative United States generally accepted accounting principles as found in the Accounting Standards Codification ("ASC") and Accounting Standards Updates ("ASU") of the Financial Accounting Standards Board ("FASB"). The Company's consolidated financial statements include the accounts of the Company and its wholly-owned subsidiary, Akoya Biosciences UK Ltd. ("Akoya UK"). All intercompany balances and transactions have been eliminated in consolidation.

Foreign currency remeasurement

Akoya UK's subsidiary's activities are recorded in British Pound Sterling and are remeasured using the United States Dollar as the functional currency. The balance sheet is remeasured into U.S. dollars at the exchange rate as of the balance sheet date. Revenues, expenses, and cash flows are remeasured at average rates during each reporting period. Net exchange gains and losses resulting from the remeasurement of the United Kingdom subsidiary balances are charged directly to operations and are included in other expense and were determined to be immaterial for the years ended December 31, 2020 and 2019.

Foreign exchange transaction gains and losses are included in other expense, net in the accompanying consolidated statements of operations and were determined to be immaterial for the years ended December 31, 2020 and 2019.

Use of estimates

The preparation of the Company's consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. The Company utilizes certain estimates in the determination of the fair value of its stock options and warrant, the useful lives of property and equipment, revenue recognition, determining the fair value of intangible assets, accrued expenses, income tax accounting, the value of purchase consideration paid and identifiable assets acquired and assumed in acquisitions, contingent consideration, goodwill and intangible asset impairment review, and other contingencies. The Company bases its estimates on historical experience and other market-specific or other relevant assumptions that it believes to be reasonable under the circumstances. Actual results could differ from such estimates.

Reclassifications

Certain prior year amounts have been reclassified in the consolidated statements of operations and the consolidated statements of cash flows to conform to the current year presentation. We have reclassified $536 from selling, general, and administrative to research and development costs in 2019 on the consolidated statements of operations. We have reclassified $695 from operating cash flows to financing cash flows on the consolidated statements of cash flows related to the payment made for contingent consideration in 2019. Such reclassifications did not have any impact on the results of operations or cash flows.

Segment information

Operating segments are defined as components of an enterprise about which separate discrete information is available for evaluation by the chief operating decision-maker in deciding how to allocate resources and assess performance. The Company's chief operating decision-maker, the Company's chief executive officer, views the Company's operations and manages its business as a single operating segment.

Concentrations of credit risk

Cash and cash equivalents are financial instruments that potentially subject the Company to concentrations of credit risk. The Company maintains its cash deposits, which at times may exceed federally insured limits, with large financial institutions and, accordingly, the Company believes their cash and cash equivalents are subject to minimal credit risk.

Cash and cash equivalents and restricted cash

The Company considers all highly liquid investments with a maturity of three months or less when purchased to be cash equivalents.

The Company records cash and cash equivalents as restricted when it is unable to freely use such cash and cash equivalents for general operating purposes. As of December 31, 2020 and 2019, restricted cash is recorded as long term and consists of a security deposit in a financial institution that is restricted from use as collateral for our letter of credit associated with our office and laboratory space in Marlborough, MA (Note 13), as well as cash restricted from use for the Company's corporate credit card program.

Accounts receivable

The Company's accounts receivable consists of amounts due from sales to commercial customers. At each reporting period, management reviews all outstanding balances to determine if the facts and circumstances of each customer relationship indicate the need for a reserve. The Company does not require collateral and had an allowance for doubtful accounts of $103 and $50 at December 31, 2020 and 2019, respectively.

Inventory

Inventories are stated at the lower of cost or net realizable value. The Company determines the cost of its inventories, which includes amounts related to materials, direct labor and manufacturing overhead, on a first-in, first-out basis. The Company performs an assessment of the recoverability of capitalized inventory during each reporting period and writes down any excess and obsolete inventories to their realizable value in the period in which the impairment is first identified. Shipping and handling costs incurred for inventory purchases are capitalized and recorded upon sale within the cost of goods sold in the consolidated statements of operations. Inventory is primarily raw materials as the Company utilizes contract manufacturers to produce the final products, which are typically drop-shipped directly to customers.

Fair value measurements

Certain assets and liabilities are reported on a recurring basis at fair value. Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. ASC 820, Fair Value Measurements ("ASC 820"), establishes a hierarchy of inputs used in measuring fair value that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that the observable inputs be used when available.

Observable inputs are inputs that market participants would use in pricing the asset or liability based on market data obtained from sources independent of the Company. Unobservable inputs are inputs that reflect the Company's assumptions about the inputs that market participants would use in pricing the asset or liability and are developed based on the best information available in the circumstances. The hierarchy defines three levels of valuation inputs:

Level 1 — Quoted unadjusted prices for identical instruments in active markets.

Level 2 — Quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active, and model-derived valuations in which all observable inputs and significant value drivers are observable in active markets.

Level 3 — Model derived valuations in which one or more significant inputs or significant value drivers are unobservable, including assumptions developed by the Company.

The fair value hierarchy prioritizes valuation inputs based on the observable nature of those inputs. Assets and liabilities measured at fair value are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. The Company's assessment of the significance of a particular input to the fair value measurement in its entirety requires management to make judgments and consider factors specific to the asset or liability (Note 5).

For certain financial instruments, including accounts receivable, prepaid expenses and other current assets, accounts payable, and accrued expenses, the carrying amounts approximate their fair values as of December 31, 2020 and 2019 because of their short-term nature. At December 31, 2020 and 2019, the carrying value of the Company's debt approximated fair value, which was determined using Level 3 inputs, using market quotes from brokers and is based on current rates offered for similar debt (Note 9).

Property and equipment

Property and equipment are recorded at cost and depreciated over their estimated useful lives using the straight-line method. Repairs and maintenance costs are expensed as incurred, whereas major improvements are capitalized as additions to property and equipment.

Demo inventory

Demo inventory is considered a hybrid between fixed asset and regular inventory as the Company occasionally sells the demo product to customers upon request. Potential customers and key opinion leaders use demo inventory in the field for a trial period and on occasion purchase the inventory within a few months of usage. Demo inventory that is not purchased by the potential customer or key opinion leader is returned to the Company. Demo inventory is recorded at cost and depreciated over their estimated useful lives using the straight-line method. Repairs and maintenance costs are expensed as incurred, whereas major improvements are capitalized as additions to demo inventory. Upon sale, Demo inventory, if and when sold, is recorded as product revenue and the remaining carrying value is booked through cost of goods sold.

Business combinations — intangible assets and contingent consideration

The Company bases the fair value of identifiable intangible assets acquired in a business combination on detailed valuations that use information and assumptions provided by management, which consider management's best estimates of inputs and assumptions that a market participant would use. The Company's intangible assets are amortized on a straight-line basis over their estimated useful lives ranging from 4 to 15 years.

Further, for those arrangements which arise from a business combination that involve potential future contingent consideration, the Company records on the date of acquisition a liability equal to the fair value of the estimated additional consideration the Company may be obligated to make in the future. The Company re-measures this liability each reporting period and records changes in the fair value through changes in fair value of contingent consideration within the Company's consolidated statements of operations. The Company records amounts currently due as it relates to contingent consideration within accrued expenses. Increases or decreases in the fair value of the contingent consideration liability can result from changes in discount rates, periods, timing and amount of projected revenue or timing or likelihood of achieving regulatory, revenue or commercialization-based milestones. The use of alternative valuation assumptions, including estimated revenue projections, growth rates, cash flows, discount rates, useful life or probability of achieving regulatory or revenue-based milestones could result in different purchase price allocations and recognized amortization expense and contingent consideration expense or benefit in current and future periods.

Impairment of long-lived assets and goodwill

The Company evaluates its long-lived assets, including demo inventory, for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If indications of impairment exist, projected future undiscounted cash flows associated with the asset or asset group are compared to the carrying amount to determine whether the asset's value is recoverable. During this analysis, the Company reevaluates the significant assumptions used in determining the original cost and

estimated lives of long-lived assets. Although the assumptions may vary from asset to asset, they generally include operating results, changes in the use of the asset, cash flows and other indicators of value. The Company then determines whether the remaining useful life continues to be appropriate or whether there has been an impairment of long-lived assets based primarily upon whether expected future undiscounted cash flows are sufficient to support the assets' recovery. If the carrying value of the asset exceeds such projected undiscounted cash flows, the asset will be written down to its estimated fair value.

The Company tests goodwill for impairment annually and tests intangible assets for impairment whenever events or changes in circumstances indicate that the carrying value of the asset may not be recoverable (i.e., upon occurrence of a triggering event). The Company performs its annual impairment review of goodwill at November 1 (and if and when triggering events occur between annual impairment tests). Upon completion of its quantitative assessment as of November 1, 2020, the Company has concluded that goodwill is not impaired. No events or changes in circumstances have indicated that the Company's intangible assets with useful lives are impaired as of December 31, 2020.

Debt issuance costs

Debt issuance costs represent fees paid to or on behalf of the Company's lenders to obtain debt financing. Debt issuance costs are recorded as a discount of the related debt. The costs are accreted over the term of the debt through interest expense using the straight line method which approximates the effective interest method.

Revenue recognition

The Company follows ASC 606, Revenue from Contracts with Customers ("ASC 606").

The Company generates revenue from the sale and installation of instruments, related warranty services, reagents and software (both company-owned and with third parties). Pursuant to ASC 606, revenue is recognized when a customer obtains control of promised goods or services. The amount of revenue recognized reflects the consideration the Company expects to be entitled to receive in exchange for these goods and services.

To determine the appropriate amount of revenue to be recognized for arrangements determined to be within the scope of Topic 606, the Company performs the following five steps: (i) identification of the customer contract; (ii) identification of the performance obligations; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations; and (v) recognition of revenue when (or as) the Company satisfies each performance obligation. The Company only applies the five-step model to contracts when it is probable that the Company will collect consideration it is entitled to in exchange for the goods or services it transfers to the customer.

The Company evaluates all promised goods and services within a customer contract and determines which of those are separate performance obligations. This evaluation includes an assessment of whether the good or service is capable of being distinct and whether the good or service is separable from other promises in the contract. Promised goods or services are considered distinct when (i) the customer can benefit from the good or service on its own or together with other readily available resources and (ii) the promised good or service is separately identifiable from other promises in the contract.

Most of the Company's contracts with customers contain multiple performance obligations (i.e., sale of an instrument and warranty services). For these contracts, the Company accounts for individual performance obligations separately if they are distinct (i.e. capable of being distinct and separable from other promises in the contract). The transaction price is allocated to the separate performance obligations on a relative standalone selling price basis. Excluded from the transaction price are sales tax and other similar taxes which are presented on a net basis.

Product Revenue

Product revenue is generated by the sale of instruments and consumable reagents predominantly through the Company's direct sales force in the United States and in geographic regions outside the United States such as APAC and EMEA. The Company does not offer product return or exchange rights (other than

those relating to defective goods under warranty) or price protection allowances to its customers. When an instrument is purchased by a customer, the Company recognizes revenue when the related performance obligation is satisfied (i.e. when the control of an instrument has passed to the customer). Revenue from the sale of consumables is recognized upon shipment to the customer. The Company's perpetual software licenses generally have significant stand-alone functionality to the customer upon delivery and are considered to be functional intellectual property (IP). The Company's perpetual software licenses are considered distinct performance obligations, and revenue allocated to the software license is typically recognized upon provision of the license/software code to the customer (i.e., when the software is available for access and download by the customer).

Service and Other Revenue

Product sales of instruments include a service-based warranty typically for one year following the installation of the purchased instrument, with an extended warranty for an additional year sold in many cases. These are determined to comprise separate performance obligations as they are service-based warranties and are recognized on a straight-line basis over the service delivery period. After completion of the service period, customers have an option to renew or extend the warranty services, typically for additional one-year periods in exchange for additional consideration. The extended warranties are also service-based warranties that represent separate purchasing decisions. The Company recognizes revenue allocated to the extended warranty performance obligation on a straight-line basis over the service delivery period. Revenue from separately charged installation services is recognized upon completion of the installation process. Additionally, the Company provides laboratory services, in which revenue is recognized as services are performed. For laboratory services, we generally use the cost-to-cost approach to measure the extent of progress towards completion of the performance obligation because we believe it best depicts the transfer of assets to the customer. Under the cost-to-cost measure approach, the extent of progress towards completion is measured based on the ratio of costs incurred to date to the total estimated costs at completion of the performance obligation. Revenues are recorded proportionally as costs are incurred. The Company records shipping and handling billed to customers as service and other revenue and the related costs in cost of service and other revenue in the consolidated statements of operations.

Disaggregation of Revenue

The Company disaggregates revenue from contracts with customers by type of products, and between service and other revenue, as it best depicts how the nature, amount, timing and uncertainty of revenue and cash flows are affected by economic factors. The following table disaggregates the Company's revenue by major source:

	Year ended	
	December 31, 2020	**December 31, 2019**
Revenue		
Product revenue		
Instruments	$23,772	$26,470
Consumables	8,535	8,167
Standalone software products	1,131	1,707
Total product revenue	$33,438	$36,344
Service and other revenue	$ 9,005	$ 5,892
Total revenue	$42,443	$42,236

Significant Judgments

The Company's contracts with customers often include promises to transfer multiple products and services to a customer. Determining whether products and services are considered distinct performance obligations that should be accounted for separately versus together requires significant judgment. Once the Company determines the performance obligations, the Company determines the transaction price, which includes estimating the amount of variable consideration, based on the most likely amount, to be included

in the transaction price, if any. The Company then allocates the transaction price to each performance obligation in the contract based on a relative standalone selling price method. The corresponding revenue is recognized as the related performance obligations are satisfied as discussed in the revenue categories above.

Judgment is required to determine the standalone selling price for each distinct performance obligation. The Company determines standalone selling price based on the price at which the performance obligation in the contract (i.e. instrument, service warranty, installation) would be sold separately. As the first-year warranty for each instrument is embedded in the instrument price, the amount allocated to the first-year warranty has been determined based on the separately identifiable price of the Company's extended warranty offering when it is sold on a renewal basis.

If the standalone selling price is not observable through past transactions, the Company estimates the standalone selling price taking into account available information such as market conditions and the expected costs and margin related to the performance obligations. Contracts in which only one performance obligation is identified (i.e., consumables and standalone software products) do not require allocation of the transaction price.

Contract Assets and Liabilities

The Company did not record any contract assets at December 31, 2020 or 2019.

The Company's contract liabilities consist of upfront payments for service-based warranties on instrument sales. The Company classifies these contract liabilities in deferred revenue as current or noncurrent based on the timing of when the Company expects to service the warranty.

Cost to Obtain and Fulfill a Contract

Under ASC 606, the Company is required to capitalize certain costs to obtain customer contracts and costs to fulfill customer contracts. These costs are required to be amortized to expense on a systemic basis that is consistent with the transfer to the customer of the goods or services to which the asset relates, compared to previously being expensed as incurred. As a practical expedient, the Company recognizes any incremental costs to obtain a contract as an expense when incurred if the amortization period of the asset is one year or less. Capitalizable costs to obtain contracts, such as commissions, and costs to fulfill customer contracts were determined to be immaterial for the years ended December 31, 2020 and 2019.

Cost of goods sold

Cost of product revenue includes the cost of materials, direct labor, and manufacturing overhead costs used in the manufacture of products sold to customers.

Cost of service and other revenue consists of personnel, facility costs associated with operating our laboratory testing on behalf of the customers, costs related to instrument maintenance, servicing equipment, training customers at customer sites, freight, other direct costs, and overhead.

Redeemable convertible preferred stock

The Company has classified redeemable convertible preferred stock as temporary equity on the accompanying consolidated balance sheets because it becomes redeemable due to the passage of time or could become redeemable due to certain change in control clauses that are outside of the Company's control. The redeemable convertible preferred stock is adjusted to the redemption value over time through the date of the earliest redemption date. These increases are recorded as charges against retained earnings, if any, and then to additional paid-in capital. Then, in the absence of additional paid-in capital, the accretion is charged to the accumulated deficit.

Research and development costs

Costs incurred in the research and development of the Company's product candidates are expensed as incurred. Research and development expenses consist of costs incurred in performing research and development activities, including activities associated with performing services under research revenue

arrangements, costs associated with the manufacture of developing products and include salaries and benefits, stock compensation, research related facility and overhead costs, laboratory supplies, equipment and contract services.

Capitalized software development costs

Since the Company sells standalone licensed software products to its customers, the Company applies the software revenue recognition guidance related to accounting for the costs of such software to be sold, leased or otherwise marketed in accordance with ASC 985-20, *Costs of Software to be Sold, Leased, or Marketed*, or ASC 985-20. Such guidance requires capitalization of certain software development costs subsequent to the establishment of technological feasibility. The Company has determined that costs eligible for capitalization under ASC 985-20 during the years ended December 31, 2020 and 2019 were immaterial.

We account for costs to develop or obtain internal-use software in accordance with ASC 350-40, *Internal-Use Software*, or ASC 350-40. We also account for costs of significant upgrades and enhancements resulting in additional functionality under ASC 350-40. These costs are primarily development costs related to our cloud-based Proxima software which will be accessed by customers on a subscription basis. Proxima is an open solution designed to meet both requirements by enabling the storage, sharing, analysis, and visualization of spatial phenotyping images and experimental results generated on our platforms. The Company expects to commercialize Proxima in 2021, and thus has not started amortizing the associated capitalized intangible asset as of December 31, 2020, and has not recognized revenues for the period ended December 31, 2020. Costs incurred for maintenance, training, and minor modifications or enhancements are expensed as incurred. Internal-use software is amortized on a straight-line basis over its estimated useful life. Management evaluates the useful lives of these assets on an annual basis and tests for impairment whenever events or changes in circumstances occur that could impact the recoverability of these assets. Development costs related to internal-use software were $659 in 2020 and recorded as an intangible asset on our December 31, 2020 consolidated balance sheet. We estimated the useful life of such asset to be five years. The Company determined costs eligible for capitalization under ASC 350-40 during the year ended December 31, 2019 were immaterial.

Advertising expenses

The cost of advertising, marketing and media is expensed as incurred. For the year ended December 31, 2020 and 2019, advertising costs totaled $0.8 million and $0.9 million, respectively.

Comprehensive loss

Comprehensive loss is defined as the change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources. Comprehensive loss consists of net loss and other comprehensive loss, which includes certain changes in equity that are excluded from net loss. The Company's comprehensive loss equals reported net loss for all periods presented.

Deferred offering costs

The Company capitalizes certain legal, professional accounting and other third party fees that are directly associated with in-process equity financings as deferred offering costs until such financings are consummated. After consummation these costs are recorded in stockholders' equity (deficit) as a reduction of additional paid in capital generated as a result of the offering. Should the in-process equity financing be abandoned, the deferred offering costs will be expensed as a charge to operating expenses. As of December 31, 2020, $269 of deferred offering costs were included in other assets in the accompanying consolidated balance sheets. There were no deferred offering costs at December 31, 2019.

Stock-based compensation

The Company records stock-based compensation for options granted to employees and to members of the board of directors for their services on the board of directors based on the grant date fair value of awards issued, and the expense is recorded on a straight-line basis over the requisite service period, which is generally four years. The Company accounts for non-employee stock-based compensation arrangements

based on the fair value of the consideration received or the equity instruments issued, whichever is more reliably measurable. The measurement date for non-employee awards is generally the date that the performance of services required for the non-employee award is complete. In accordance with authoritative guidance, the fair value of non-employee stock-based awards is estimated on the date of grant, and subsequently revalued at each reporting period over their vesting period using the Black-Scholes option-pricing model.

The Company uses the Black-Scholes-Merton option pricing model to determine the fair value of stock options. The use of the Black-Scholes-Merton option-pricing model requires management to make assumptions with respect to the expected term of the option, the expected volatility of the common stock consistent with the expected life of the option, risk-free interest rates and expected dividend yields of the common stock. The expected term was determined according to the simplified method, which is the average of the vesting tranche dates and the contractual term. Due to the lack of company-specific historical and implied volatility, the Company bases its estimate of expected volatility on the historical volatility of a group of similar companies that are publicly traded. For these analyses, companies with comparable characteristics are selected, including enterprise value and position within the industry, and with historical price information sufficient to meet the expected life of the stock-based awards. The Company computes the historical volatility data using the daily closing prices for the selected companies' shares during the equivalent period of the calculated expected term of its stock-based awards. The risk-free interest rate is determined by reference to the U.S. Treasury zero-coupon issues with remaining maturities similar to the expected term of the options. The Company has not paid, and does not anticipate paying, cash dividends on shares of common stock; therefore, the expected dividend yield is assumed to be zero. The Company has elected to account for forfeitures as they occur; any compensation cost previously recognized for an award that is forfeited because of a failure to satisfy a service or performance condition will be reversed in the period of the forfeiture. Refer to Note 11 for further details on the Company's stock-based compensation plan.

Warrant to purchase redeemable convertible preferred stock

The Company reviews the terms of all warrants issued in connection with the applicable accounting guidance and classifies warrants as a long-term liability on the consolidated balance sheets if the warrant may conditionally obligate the Company to transfer assets, including repurchase of the issuers' shares, at some point in the future. Warrants to purchase shares of redeemable convertible preferred stock meet these criteria and therefore require liability-classification.

Liability-classified warrants are subject to re-measurement at each balance sheet date, and any change in fair value is recognized as a component of other income (expense) in the consolidated statements of operations. The Company estimates the fair value of these warrants at issuance and each financial reporting date thereafter using the valuation model as discussed in Note 5.

Income taxes

The Company provides for income taxes using the liability method. The Company provides deferred tax assets and liabilities for the expected future tax consequences of temporary differences between the Company's financial statement carrying amounts and the tax basis of assets and liabilities using enacted tax rates expected to be in effect in the years in which the differences are expected to reverse. Deferred tax assets and liabilities are recorded net as long term. A valuation allowance is provided to reduce the deferred tax assets to the amount that will more likely than not be realized.

The Company applies ASC 740 Income Taxes ("ASC 740") in accounting for uncertainty in income taxes. The Company has identified an uncertain tax position, however this uncertain tax position has not created a liability for the years ending December 31, 2020 and 2019 as the reserve has been applied against the asset. The Company will recognize interest and penalties related to uncertain tax positions, if any, in income tax expense.

Commitments and contingencies

Indemnification obligations

The Company has entered into indemnification agreements with its officers and directors that require the Company to indemnify such individuals for certain events or occurrences while each such officer or

director is, or was, serving at the Company's request in such capacity. The maximum potential amount of future payments the Company could be required to make is, in many cases, unlimited. The Company has directors' and officers' liability insurance coverage that limits its exposure and enables the Company to recover a portion of any future amounts paid.

The Company leases office and laboratory space under operating leases. The Company has standard indemnification arrangements under the leases that require it to indemnify the landlords against all costs, expenses, fines, suits, claims, demands, liabilities, and actions directly resulting from any breach, violation or nonperformance of any covenant or condition of the Company's leases.

In the ordinary course of business, the Company enters into indemnification agreements with certain suppliers and business partners where the Company has certain indemnification obligations limited to the costs, expenses, fines, suits, claims, demands, liabilities and actions directly resulting from the Company's gross negligence or willful misconduct, and in certain instances, breaches, violations or nonperformance of covenants or conditions under the agreements.

As of December 31, 2020 and 2019, the Company had not experienced any material losses related to these indemnification obligations, and no material claims with respect thereto were outstanding. The Company does not expect significant claims related to these indemnification obligations and, consequently, concluded that the fair value of these obligations is negligible, and no related reserves were established.

The Company is subject to the possibility of loss contingencies arising in the ordinary course of business. Management considers the likelihood of loss related to an asset, or the incurrence of a liability, as well as its ability to reasonably estimate the amount of the loss, in determining loss contingencies. An estimated loss contingency is accrued when it is probable that an asset has been impaired, or a liability has been incurred and the amount of loss can be reasonably estimated. The Company regularly evaluates current information available to determine whether such accruals should be adjusted and whether new accruals are required. Refer to Note 13 for the details of the Company's contingencies.

Legal proceedings

From time to time, the Company may become involved in litigation relating to claims arising from the ordinary course of business. Management believes that there are no claims or actions pending against the Company currently, the ultimate disposition of which would have a material adverse effect on the Company's consolidated results of operation, financial condition or cash flows.

Net loss per share attributable to common stockholders

Basic and diluted net loss per common share outstanding is determined by dividing net loss, as adjusted for accretion and accrued dividends on redeemable convertible preferred stock, by the weighted average common shares outstanding during the period. Diluted net loss per share reflects the potential dilution that would occur if securities or other contracts to issue common stock were exercised or converted into common stock; however, potential common equivalent shares are excluded if their effect is anti-dilutive. In computing diluted net loss per share, the Company utilizes the treasury stock method.

The Company applies the two-class method to compute basic and diluted net loss or income per share when it has issued shares that meet the definition of participating securities. The two-class method determines net (loss) or income per share for each class of common and participating securities according to dividends declared or accumulated and participation rights in undistributed earnings. The two-class method requires net (loss) income available to common stockholders for the period to be allocated between common and participating securities based upon their respective rights to share in the earnings as if all net (loss) income for the period had been distributed. The Company's convertible preferred stock participates in any dividends declared by the Company and are therefore considered to be participating securities. The participating securities are not required to participate in the losses of the Company, and therefore during periods of loss there is no allocation required under the two-class method. See Note 14 for computation of pro forma earnings per share.

Unaudited pro forma balance sheet

The unaudited pro forma balance sheet information as of December 31, 2020 assumes the following occurs immediately prior to the completion of an IPO: (1) all outstanding shares of Class B common stock

had automatically converted into an aggregate of 2,563,765 shares of the Company's common, (2) all shares of convertible preferred stock had automatically converted into an aggregate of 26,545,579 shares of the Company's common stock, and (3) the reclassification of the warrant liability to additional paid in capital (as the warrant will be exercisable into common stock immediately prior to the closing of this offering and will no longer meet the requirements of liability classification).

Recent Accounting Standards

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies and adopted by the Company as of the specified effective date. The Company is considered to be an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, as amended (Jobs Act). The Jobs Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. Thus, an emerging growth company can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to avail ourselves of this extended transition period and, as a result, we will not be required to adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies.

Recently adopted accounting standards

In June 2018, the FASB issued ASU No. 2018-07, Compensation-Stock Compensation: Improvements to Nonemployee Share-Based Payment Accounting (“ASU 2018-07”). This guidance simplifies the accounting for share-based payments to nonemployees by aligning it with the accounting for share-based payments to employees, with certain exceptions. This standard is effective for the Company for fiscal years beginning after December 15, 2019, and early adoption is permitted. The Company adopted ASU 2018-07 effective as of January 1, 2020 and the impact of adoption was determined to be immaterial.

In August 2018, the FASB issued ASU No. 2018-13, Fair Value Measurement (“ASU 2018-13”), which eliminates, adds and modifies certain disclosure requirements for fair value measurements. The amendment is effective for interim and annual reporting periods beginning after December 15, 2019. The Company adopted ASU 2018-13 effective as of January 1, 2020 and the impact of adoption was determined to be immaterial.

Recently issued but not yet adopted accounting standards

In February 2016, the FASB issued ASU 2016-02, Leases (Topic 842) in order to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet for those leases classified as operating leases under previous generally accepted accounting principles. ASU 2016-02 requires a lessee to recognize a liability to make lease payments (the lease liability) and a right-of-use asset representing its right to use the underlying asset for the lease term on the balance sheet. ASU 2016-02 is effective for fiscal years beginning after December 15, 2018 (including interim periods within those periods) and early adoption is permitted. In August 2018, the FASB issued ASU 2018-11, Targeted Improvements to ASC 842, which provides a new transition option in which an entity initially applies ASU 2016-02 at the adoption date and recognizes a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. In June 2020, the FASB issued an extension in the effective date for all non-public companies. This extended the effective date to annual periods beginning after December 15, 2021 (i.e. calendar year periods beginning on January 1, 2022) and interim periods within fiscal years beginning after December 15, 2022. Early adoption is permitted. Prior period comparative balances will not be adjusted. The Company expects to use the new transition option and will expect to be also utilizing the package of practical expedients that allows it to not reassess: (1) whether any expired or existing contracts are or contain leases, (2) lease classification for any expired or existing leases, and (3) initial direct costs for any existing leases. The Company expects to use the short-term lease exception for leases with a term of twelve months or less. Additionally, the Company expects to use the practical expedient that allows it to treat each separate lease component of a contract and its associated non-lease components as a single lease component. The Company has not yet adopted ASU 2016-02 and is continuing to evaluate the impact of adoption on these consolidated financial statements.

In June 2016, the FASB issued ASU No. 2016-13, Financial Instruments — Credit Losses (Topic 326) — Measurement of Credit Losses on Financial Instruments, which has been subsequently amended by ASU No. 2018-19, ASU No. 2019-04, ASU No. 2019-05, ASU No. 2019-10, ASU No. 2019-11 and ASU No. 2020-03 ("ASU 2016-13"). The provisions of ASU 2016-13 modify the impairment model to utilize an expected loss methodology in place of the currently used incurred loss methodology and require a consideration of a broader range of reasonable and supportable information to inform credit loss estimates. ASU 2016-13 is effective for the Company on January 1, 2023, with early adoption permitted. The Company is currently evaluating the potential impact that ASU 2016-13 may have on its consolidated financial statements and related disclosures.

In January 2017, the FASB issued ASU No. 2017-04, Intangibles-Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment, which simplifies the subsequent measurement of goodwill by eliminating Step 2 from the goodwill impairment test. Instead of determining a hypothetical purchase price allocation to measure goodwill impairment, the Company will compare the fair value of a reporting unit with its carrying amount. The update also includes a new requirement to disclose the amount of goodwill allocated to reporting units with zero or negative carrying amounts. This standard is effective for the Company for fiscal years beginning after December 15, 2021, and early adoption is permitted. The Company is in the process of evaluating the impact, if any, that this new guidance will have on the Company's consolidated financial statements.

(3) Significant risks and uncertainties including business and credit concentrations

Financial instruments that potentially subject the Company to concentrations of credit risk consist primarily of cash equivalents and receivables. The Company's cash equivalents are held by large, credit worthy financial institutions. The Company invests its excess cash in certificates of deposits. The Company has established guidelines relative to credit ratings, diversification and maturities that seek to maintain safety and liquidity. Deposits in these banks may exceed the amounts of insurance provided on such deposits. To date, the Company has not experienced any losses on its deposits of cash and cash equivalents.

The Company controls credit risk through credit approvals, credit limits, and monitoring procedures. The Company performs periodic credit evaluations of its customers and generally does not require collateral. Accounts receivable are recorded net of an allowance for doubtful accounts. The allowance for doubtful accounts is based on management's assessment of the collectability of specific customer accounts and the aging of the related invoices and represents the Company's best estimate of probable credit losses in its existing accounts receivable. In 2019, PKI served as our distributor for Europe and parts of APAC, and thus represented a significant concentration of revenue and accounts receivable.

For the year ended December 31, 2020, no customers accounted for more than 10% of revenue. For the year ended December 31, 2019, PKI accounted for 30% of revenue. No customers accounted for greater than 10% of accounts receivable at December 31, 2020. PKI comprised 21% of accounts receivable at December 31, 2019.

(4) Business Acquisitions

On September 28, 2018, the Company acquired substantially all the assets of the Quantitative Pathology Solutions ("QPS") division of PKI. As part of the acquisition, on September 28, 2018, the Company entered into a Transition Services Agreement and a License Agreement (the "Ancillary Agreements") with PKI. Under the terms of the License Agreement, the Company agreed to pay PKI certain royalties as a percentage of future sales of products from the QPS division, in exchange for a perpetual license of the right to produce and sell QPS products. This contingent consideration is subject to remeasurement and as of December 31, 2020 and 2019, the Company estimated the total fair value of future potential royalty payments under the License Agreement to be $8,574 and $10,682, respectively, using a Discounted Cash Flow Analysis under the Income Approach based on the Company's future projected revenues (see Note 5), of which $6,984 and $8,139, respectively was recorded as Contingent Consideration Liability and $1,590 and $2,543 was recorded in Accrued Liabilities, respectively.

The Company recognized as of the acquisition date $1.9 million in fixed assets, $2.1 million in other current liabilities, $26.7 million in intangible assets, and $18.3 million in goodwill. The goodwill balance

recognized as of the acquisition date was measured as the excess of the purchase price over the fair value of acquired net assets. Identifiable definite-lived intangible assets, such as developed technology, trade names, non-compete agreements and customer relationships acquired as part of this acquisition had a weighted average amortization period of 13 years (see Note 7). The Company determined the estimated fair values of the identifiable intangible assets acquired after review and consideration of relevant information including discounted cash flow analyses, comparable market data, and the Company's estimates and projections.

(5) Fair value of financial instruments

The Company measures the following financial liabilities at fair value on a recurring basis. There were no transfers between levels of the fair value hierarchy during any of the periods presented. The following tables set forth the Company's financial assets and liabilities carried at fair value categorized using the lowest level of input applicable to each financial instrument as of December 31, 2020 and 2019:

	Balance at December 31, 2020	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Liabilities:				
Warrant liability	$ 490	$—	$—	$ 490
Contingent consideration – Long term portion	$6,984	$—	$—	$6,984
	$7,474	$—	$—	$7,474

	Balance at December 31, 2019	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Liabilities:				
Warrant liability	$ 192	$—	$—	$ 192
Contingent consideration – Long term portion	$8,139	$—	$—	$8,139
	$8,331	$—	$—	$8,331

The Company's recurring fair value measurements using Level 3 inputs relate to the Company's contingent consideration liability and warrant liability. In those circumstances where an acquisition involves a contingent consideration arrangement, the Company recognizes a liability equal to the fair value of the contingent payments the Company expects to make as of the acquisition date. The Company re-measures this liability each reporting period and records changes in the fair value through changes in fair value of Contingent consideration on the Company's consolidated statements of operations. Increases or decreases in the fair value of the contingent consideration liability can result from changes in discount rates, periods, timing and amount of projected revenue.

The Company uses the Black-Scholes option pricing model to value the warrant liability for the Series D Preferred Stock warrant. The Black Scholes option pricing model is based on the estimated market value of the underlying redeemable convertible preferred stock at the valuation measurement date, the remaining contractual term of the warrant, risk-free interest rates, expected dividends, and expected volatility of the price of the underlying redeemable convertible preferred stock.

Changes in the fair value of the Company's long-term portion of the contingent consideration liability during the years ended December 31, 2020 and 2019 were as follows:

Balance as of December 31, 2018	$11,883
Reclassification of Q4 2019 payment to accrued expenses	(2,543)
Change in contingent consideration value	(1,201)
Balance as of December 31, 2019	$ 8,139
Contingent consideration paid	(171)
Reclassification of Q4 2020 payment to accrued expenses	(1,590)
Change in contingent consideration value	606
Balance as of December 31, 2020	$ 6,984

The difference between the amount paid in 2020 and the amount included in accrued expenses at December 31, 2019 is $87 and is included in the change in fair value of contingent consideration in our 2020 consolidated statement of operations.

The recurring Level 3 fair value measurements of the Company's contingent consideration liability include the following significant unobservable inputs:

Contingent Consideration Liability	Fair Value as of December 31, 2020	Valuation Technique	Unobservable Inputs
Revenue-based Payments	$6,984	Discounted Cash FlowAnalysis under the Income Approach	Revenue discount factor, discount rate

Changes in the fair value of the Company's warrant liability during the years ended December 31, 2020 and 2019 were as follows:

Balance as of December 31, 2018	$ —
Issuance of warrant liability	192
Balance as of December 31, 2019	$192
Change in fair value of warrant liability	298
Balance as of December 31, 2020	$490

The recurring Level 3 fair value measurements of the Company's warrant liability include the following significant unobservable inputs:

Warrant Liability	Fair Value as of December 31, 2020	Valuation Technique	Unobservable Inputs
Warrant to purchase 368,780 shares of Series D Preferred Stock	$490	Black Scholes option pricing model	Expected volatility, term, risk-free rate

(6) Property and equipment, net

Property and equipment consists of the following:

	Estimated Useful Life (Years)	December 31, 2020	December 31, 2019
Furniture and fixtures	7	$ 358	$ 343
Computers, laptop and peripherals	5	2,367	1,767
Laboratory equipment	5	3,806	2,661
Leasehold improvements	Shorter of the lease life or 7	1,261	1,078
Total property and equipment		7,792	5,849
Less: Accumulated depreciation		(2,264)	(866)
Property and equipment, net		$ 5,528	$4,983

Depreciation expense of $1,398 and $655 relating to property and equipment was charged to operations for the years ended December 31, 2020 and 2019, respectively.

Demo inventory consists of the following:

	Estimated Life (Years)	December 2020	December 2019
Demo inventory – gross	3	$2,010	$ 694
Less: Accumulated depreciation		(516)	(219)
Demo inventory, net		$1,494	$ 475

Depreciation expense of $335 and $317 relating to demo equipment was charged to operations for the years ended December 31, 2020 and 2019, respectively.

(7) Intangible assets and goodwill

Intangible assets as of December 31, 2020 are summarized as follows:

	Cost	Accumulated Amortization	Net	Useful Life (in years)
Customer relationships	$11,800	(1,774)	10,026	15
Developed technology	$ 8,300	(1,560)	6,740	12
Licenses	$ 63	(20)	43	15
Trade names and trademarks	$ 6,300	(1,184)	5,116	12
Capitalized software	$ 659	—	659	5
Non-compete agreements	$ 300	(170)	130	4
Total intangible assets	$27,422	(4,708)	22,714	

Intangible assets as of December 31, 2019 are summarized as follows:

	Cost	Accumulated Amortization	Net	Useful Life (in years)
Customer relationships	$11,800	$ (989)	$10,811	15
Developed technology	$ 8,300	(868)	7,432	12
Licenses	$ 63	(16)	47	15
Trade names and trademarks	$ 6,300	(659)	5,641	12
Non-compete agreements	$ 300	(94)	206	4
Total intangible assets	$26,763	$(2,626)	$24,137	

Total amortization expense was $2,082 for the years ended December 31, 2020 and 2019, respectively.

In November 2015, the Company entered into a license agreement with Stanford University (“Stanford”), pursuant to which Stanford granted the Company an exclusive, worldwide, sublicensable license under certain patent rights to make, use, import and commercialize products for diagnostic, industrial and research and development purposes. In accordance with the agreement, the Company capitalized non-refundable royalties paid to Stanford totaling $63, subject to straight-line amortization over a period of 15 years, or the term of the related agreement.

As of December 31, 2020, the amortization expense related to identifiable intangible assets in future periods is expected to be as follows:

2021	2,215
2022	2,195
2023	2,140
2024	2,140
2025	2,139
Thereafter	11,885
Total	$22,714

As of December 31, 2020 and 2019, the goodwill balance is $18,262.

(8) Accrued expenses and other current liabilities

Accrued expenses and other current liabilities consist of the following:

	December 31, 2020	December 31, 2019
Accrued payroll and compensation	$2,225	$2,991
Current portion of contingent consideration	1,590	2,543
Accrued inventory purchases	478	681
Other accrued expenses	2,722	2,366
Total accrued expenses and other current liabilities	$7,015	$8,581

(9) Debt and capital lease obligations

Term Loan Agreements

In September 2018, the Company entered into a term loan agreement with Pacific Western Bank that provided for an advance of $20,000 (the “PacWest Term Loan”) to the Company on the closing date. The Company utilized the PacWest Term Loan proceeds for the acquisition of certain assets of the QPS business of PKI (Note 4). The PacWest Term Loan Agreement additionally provided the Company with the option to request a second term loan advance of up to $5,000 (the “Undrawn Commitment”) at any point during the

period commencing on the closing date and ending on the PacWest Term Loan maturity date, and during 2019, the Company drew down on the additional $5,000.

Amounts borrowed under the PacWest Term Loan Agreement had an initial maturity of nine months from September 21, 2018 and accrued interest at a variable annual rate equal to the prime rate. The PacWest Term Loan Agreement was repaid in 2019.

In September 2019, the Company entered into a Loan and Security Agreement with Innovatus Life Sciences Lending Fund I, LP (the "Lender"), under which the Lender agreed to make a term loan to the Company in an aggregate principal amount of $25,000 (the "Innovatus Term Loan"). Amounts borrowed under the Loan and Security Agreement have an initial maturity date of September 1, 2024 and accrue interest at a floating annual rate equal to the sum of (a) the greater of 5.25% or the prime rate and (b) 3.75%, which was 9% at December 31, 2019. For each of the first 24 months, the Company will be paying 7.25% as cash interest and deferring 1.75% of interest until October 1, 2022. Deferred interest is $115 as of December 31, 2019. Principal payments (including the amortization of the accrued interest) of $1,079 per month commence on October 1, 2022. The Company utilized the Innovatus Term Loan proceeds to pay off the outstanding balance of the PacWest Term Loan in full on September 27, 2019. A final payment fee of $750 is due upon the earlier to occur of the maturity date or prepayment of such borrowings. For the years ended December 31, 2020 and 2019, the Company recorded $123 and $38, respectively, related to the amortization of the final payment fee associated with the Innovatus Term Loan.

In October 2020, the Company entered into a new debt financing arrangement with Midcap Trust (the "Term Loan"), for a $37,500 credit facility, consisting of a senior, secured term loan to refinance all existing indebtedness with Innovatus. The Company received $32,500 in aggregate proceeds as a result of the debt financing, and the remaining $5,000 is available to be drawn from March 31, 2021, through June 30, 2021. In connection with its entry into the Term Loan, in October 2020, the Company paid off the full balance of the Innovatus Term Loan of $26,882, including the principal, accrued interest, prepayment fee, and final fee. The Company recognized $1,671 as loss on extinguishment which was comprised of $589 related to the final payment fee, not yet accrued as of the extinguishment date, a pre-payment fee of $509, legal and other fees of $6, and the remaining unamortized debt discount of $567.

The term of the Term Loan is interest only for 36 months followed by 24-months of straight-line amortization. Interest on the outstanding balance of the Term Loan shall be payable monthly in arrears at an annual rate of one-month LIBOR plus 6.35%, subject to a LIBOR floor of 1.50%. The interest rate was 7.85% at December 31, 2020. At the time of final payment under the Term Loan, the Company is required to pay Midcap a final payment fee of 5.00% of the amount borrowed under the Term Loan. If the Term Loan is prepaid prior to the end of the Term, the Company shall pay to Midcap a fee as compensation for the costs of being prepared to make funds available in an amount determined by multiplying the amount being prepaid by (i) three percent (3.00%) in the first year, two percent, (2.00%) in the second year and one percent (1.00%) in the third year and thereafter. A final payment fee of $1,625 is due upon the earlier to occur of the maturity date or prepayment of such borrowings. For the year ended December 31, 2020, the Company recorded $59 related to the amortization of the final payment fee associated with the Term Loan.

Paycheck Protection Program Loan

In April 2020, the Company received a $2,476 small business loan under the Payroll Protection Program, part of the Coronavirus Aid, Relief and Economic Security Act ("CARES ACT"). In December 2020, we applied for forgiveness of the full loan amount using Any such forgiveness of indebtedness, in accordance with the CARES Act, does not give rise to federal taxable income. If not forgiven, the note bears interest at a rate of 1.00% and payments are scheduled to begin the latter of March 2021, or upon response by the SBA regarding our forgiveness application.

The PPP, established as part of the Coronavirus Aid, Relief and Economic Security Act ("CARES Act"), provides for loans to qualifying businesses for amounts up to 2.5 times of the average monthly payroll expenses of the qualifying business. Such loan provides for customary events of default, including, among others, those relating to failure to make payment when due and breaches of representations. The Company may prepay the principal of the loan at any time without incurring any prepayment charges. The loan is subject to all the terms and conditions applicable under the PPP and is subject to review by the

Small Business Association (the "SBA") for compliance with program requirements, including the Company's certification that the current economic uncertainty made the PPP loan request necessary to support ongoing operations.

In June 2020, the Payroll Protection Program Flexibility Act ("PPPFA") was signed into law adjusting certain key terms of loans issued under the PPP. In accordance with the PPPFA, the initial deferral period may be extended from six to up to ten months and the loan maturity may be extended from two to five years. The PPPFA also provided for certain other changes, including the extent to which the loan may be forgiven.

The loan's principal and accrued interest are forgivable to the extent that the proceeds are used for eligible purposes, subject to certain limitations, and that the Company maintains its payroll levels over a twenty-four-week period following the loan date. The loan forgiveness amount may be reduced if the Company terminates employees or reduces salaries during the twenty-four-week period. The Company believes that it has used the proceeds for eligible purposes consistent with the provisions of the PPPFA. However, there can be no assurance that any portion of the loan will be forgiven.

As the legal form of the loan is a debt obligation, the Company is accounting for it as debt under Accounting Standards Codification (ASC) 470, Debt and recorded a short-term debt obligation of $1.0 million, and a long-term debt obligation of $1.5 million in the consolidated balance sheet upon receipt of the loan proceeds. If any amount of the loan is ultimately forgiven, income from the extinguishment of debt would be recognized as a gain on loan extinguishment in the consolidated statement of operations.

Debt consists of the following:

	December 31, 2020	December 31, 2019
Innovatus Term Loan	$ —	$25,000
Midcap Trust Term Loan	32,500	—
PPP Loan	2,476	—
Plus: Paid-in-kind interest	—	115
Total debt	$34,976	$25,115
Unamortized debt discount	(515)	(687)
Accretion of final fee	59	38
Total debt, net	$34,520	$24,466
Less amount included as short-term	$ (1,032)	$ —
Long-term debt, net	$33,488	$24,466

As of December 31, 2020, future principal payments due under the Midcap Trust Term Loan and PPP Loan, excluding the $1,625 final payment fee, are as follows:

Year ended:	Midcap Trust Term Loan	PPP Loan
December 31, 2021	$ —	$1,032
December 31, 2022	$ —	$1,238
December 31, 2023	$ 2,708	$ 206
December 31, 2024	$16,250	$ —
December 31, 2025	$13,542	$ —
Total minimum principal payments	$32,500	$2,476

As a condition precedent to the Innovatus Term Loan, the Company also sold shares of Series D Preferred Stock at the same terms provided to the other investors as described in Note 10 for an aggregate amount of $2,000 to the Lender as part of the Series D Financing. Additionally, as a condition precedent to the Innovatus Term Loan, the Company agreed to receive at least $25,000 in net proceeds from the Series D Financing by December 2019, which the Company completed on September 27, 2019, as discussed below. In connection with the Loan and Security Agreement, the Company also issued the Lender a warrant to

purchase 368,779 additional shares of Series D Preferred Stock (the “Series D Warrant”) at a purchase price of $1.53 per share. The expiration date of the warrant is September 27, 2029. The holder may at any time and from time to time exercise this Warrant, in whole or in part, and on any exercise of the Warrant, the Holder may elect to receive Shares equal to the value of the Warrant or portion. The initial warrant value of $192 was recorded as a debt discount and is being amortized over the term of the Innovatus Term Loan. See Note 5 for valuation of Warrant.

In 2019 the Company entered into two leases for computer equipment and furniture which are classified as capital lease obligations in the consolidated balance sheets. In 2020, the Company entered into a lease for staining equipment which is classified as a capital lease in the consolidated balance sheets. As of December 31, 2020 and 2019, the current portion of the lease obligations totaled $197 and $80, respectively, and the long-term portion totaled $277 and $205, respectively.

(10) Stockholder’s equity

Common Stock

The Company has authorized 79,042,222 shares of Common Stock, $0.00001 par value per share, of which 62,220,020 shares are designated Class A common stock (“Class A Common Stock”) and 16,822,202 shares are designated Class B common stock (“Class B Common Stock” or collectively the “Common Stock”). Each share of Class A Common Stock is entitled to one vote. The holders of Class B Common Stock are not entitled to vote. The holders of Common Stock are also entitled to receive dividends whenever funds are legally available and when declared by the board of directors, subject to the prior rights of holders of all classes of stock outstanding. As of December 31, 2020 and 2019, a total of 2,563,765 and 2,286,872 shares of Class B Common Stock were issued and outstanding, respectively, and 4,656,050 and 4,932,952 shares of Class B Common Stock were reserved for issuance upon the exercise of outstanding stock options, respectively, under the Company’s 2015 Equity Incentive Plan. As of December 31, 2020 and 2019, no shares of Class A Common Stock were issued and outstanding.

Preferred Stock

The Company has authorized 62,220,020 shares of Preferred Stock, $0.00001 par value per share, of which 5,013,333 shares were designated Series A convertible preferred stock (“Series A Preferred Stock), 13,715,330 shares were designated Series B redeemable convertible preferred stock (“Series B Preferred Stock”), 26,732,361 shares were designated Series C redeemable convertible preferred stock (“Series C Preferred Stock”), and 16,758,996 shares were designated Series D redeemable convertible preferred stock (“Series D Preferred Stock, or collectively the “Preferred Stock”).

In November 2015, the Company issued 5,013,333 shares of Series A Preferred Stock at a purchase price of $0.25 per share. The issuance resulted in cash proceeds of $1,253.

In July 2017, the Company issued 13,715,330 shares of Series B Preferred Stock at a purchase price of $0.6562 per share. The issuance resulted in cash proceeds of $8,943, net of issuance costs.

In September and November 2018, the Company issued 25,684,033 and 1,048,328 shares of Series C Preferred Stock, respectively, at a purchase price of $0.9539 per share. The issuances resulted in cash proceeds of $25,437, net of issuance costs.

On September 27, 2019, the Company issued 16,390,217 shares of Series D Preferred Stock at a purchase price of $1.5253 per share. The issuance resulted in cash proceeds of $24,824 net of issuance costs (the “Series D Financing”).

As of December 31, 2020 and 2019, the Preferred Stock have the following rights, preferences and privileges:

Conversion rights

Each share of Preferred Stock is convertible at the option of the holder into Class A Common Stock shares at any time after the date of issuance. The number of Class A Common Stock shares to be issued in the event of a conversion is determined by dividing the original issue price of $0.25, $0.6562, $0.9539 and

$1.5253 for Series A, B, C and D Preferred Stock, respectively, by the conversion price of $0.5825, $1,5289, $2.2226 and $3.5539 for Series A, B, C and D Preferred Stock, respectively.

The Preferred Stock automatically converts into shares of Class A Common Stock at the earlier of (i) the closing of an initial public offering of the Company's Common Stock at a price per share of at least $3.05 with gross proceeds to the Company of at least $50,000 or (ii) the date and time, or the occurrence of an event, specified by vote or written consent of the holders of two-thirds of the voting power of the then outstanding shares of Series D Preferred Stock, voting together as a separate class.

Redemption

After the fifth anniversaries of the Series B, C and D original issuance dates, respectively, shares of the respective class of Preferred Stock may be redeemed at a price equal to the original issue price per share, plus all dividends accrued but unpaid and all declared but unpaid other dividends (the "Redemption Price"), in two semi-annual installments commencing not more than 180 days after receipt by the Company of written notice from two-thirds of the voting power of then outstanding shares of each respective class requesting redemption. No explicit redemption rights exist for Series A Preferred Stock. Since the Series B, C, and D are redeemable upon a liquidation event, which is not considered to be within the Company's control, they have been classified in temporary equity on the accompanying consolidated balance sheets.

Dividends

Dividends accrue at a rate of 8% per annum on the original issuance price of Series B, C and D Preferred Stock (the "Accruing Dividends"). Accruing Dividends become due and payable if the Preferred Stock is redeemed by election of the majority holders of Series B, Series C or Series D Preferred Stock on or after the fifth anniversary of the applicable original issuance dates, or upon the occurrence of a liquidation event if the Series B, C or D Redemption Price, respectively, exceeds the aggregate of the Liquidation Preference plus Common Participation, as defined below, for that series of Preferred Stock. Except for the Accruing Dividends payable to holders of Series B, C and D Preferred Stock, holders of the Preferred Stock and Common Stock are entitled to receive dividends declared by the board of directors on an equal basis according to the number of shares of Common Stock and Common Stock into which the Preferred Stock is then convertible.

Liquidation Preference

Upon liquidation, dissolution or winding-up of the Company, or a merger, consolidation, lease or transfer of the Company (a "Deemed Liquidation Event"), shareholders of Series A, B, C and D Preferred Stock are entitled to receive a liquidation preference in priority to holders of common stock equal to $0.25, $0.6562, $0.9539, and $1.5253 per share, respectively, plus any declared but unpaid dividends (the "Liquidation Preference"). In any such event, Series D and C Preferred Stockholders would receive first priority in liquidation payments; Series B Preferred Stockholders would receive next priority after Series C Preferred Stockholders, and Series A Preferred Stockholders would receive next priority after Series B Preferred Stockholders. Any remaining amounts would be distributed to holders of Preferred Stock and Common Stock on a pro rata basis, with the shares of Preferred Stock treated as if they have been converted into shares of Common Stock (the "Common Participation").

In the event that the aggregate of the Liquidation Preference and Common Participation for Series B, C and D Preferred Stockholders, respectively, would fall short of the Liquidation Preference plus any accrued dividends not yet paid for that series of Preferred Stock, the assets would be distributed (i) first among Series D and C Preferred Stockholders in proportion to their aggregate Liquidation Preference amounts, plus any accrued but unpaid dividends until such amounts are paid in full; (ii) second, to Series B Preferred Stockholders in proportion to their aggregate Liquidation Preference amounts, plus any accrued but unpaid dividends until such amounts are paid in full; (iii) third, to Series A Preferred Stockholders and Common Stockholders pro rata based on the number of shares held by each holder, with the shares of Series A Preferred Stock treated as if they have been converted into shares of Common Stock.

Voting Rights

Holders of Series A, B, C and D Preferred Stock are entitled to vote as a single class with the holders of Class A Common Stock, and have one vote for each equivalent common share into which the preferred

stock is convertible. Holders of the shares of Series D Preferred Stock, exclusively and as a separate class, are entitled to elect two directors of the Company, Series C Preferred Stock, exclusively and as a separate class, are entitled to elect three directors of the Company, and holders of the shares of Series B Preferred Stock, exclusively and as a separate class, are entitled to elect one director of the Company.

(11) Stock compensation plan

2015 Equity Incentive Plan

The Company's 2015 Equity Incentive Plan (the "2015 Plan") was established for granting stock incentive awards to directors, officers, employees and consultants to the Company. The 2015 Plan provided for the grant of incentive and non-qualified stock options, stock appreciation rights, restricted stock and restricted stock units as determined by the board of directors. Under the 2015 Plan, stock options are generally granted with exercise prices equal to or greater than the fair value of the common stock as determined by the board of directors, expire no later than 10 years from the date of grant, and vest over various periods not exceeding four years.

Stock Options

During the year ended December 31, 2020 and 2019, the Company granted options to employees with an aggregate fair value of $565 and $529, respectively, which are being amortized into compensation expense over the requisite service period. The Company uses the Black-Scholes option pricing model to determine the fair value of stock options. The valuation model for stock compensation expense requires the Company to make assumptions and judgments about the variables used in the calculation including the expected term (weighted-average period of time that the options granted are expected to be outstanding), volatility of the Company's common stock and an assumed-risk-free interest rate.

The fair value of the shares of common stock underlying the stock options has historically been determined by the Board of Directors. Because there has been no public market for the Company's common stock, the Board of Directors has determined fair value of the common stock at the time of grant of the option by considering a number of objective and subjective factors including valuation of comparable companies, sales of convertible preferred stock to unrelated third parties, operating and financial performance, the lack of liquidity of capital stock, and general and industry specific economic outlook, amongst other factors. In determining the fair value of the common stock, the methodologies used to estimate the enterprise value were performed using methodologies, approaches and assumptions consistent with the American Institute of Certified Public Accountants Accounting Practice Aid, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*. The fair value of the underlying common stock will be determined by the Board of Directors, after consideration of a third-party valuation report, until the Company's common stock is listed on an established stock exchange or national market system.

Expected Volatility. Since the Company is a private entity with no historical data regarding the volatility of its common stock, the expected volatility used is based on volatility of a group of similar entities, referred to as "guideline" companies. In evaluating similarity, the Company considered factors such as industry, stage of life cycle and size.

Expected Term. The Company derived the expected term using the "simplified" method (the expected term is determined as the average of the time-to-vesting and the contractual life of the options), as the Company had limited historical information to develop expectations about future exercise patterns and post vesting employment termination behavior.

Risk-Free Interest Rate. The risk-free interest rate is based on U.S. Treasury zero-coupon issues with remaining terms similar to the expected term on the options.

Dividend Yield. The Company has never paid any dividends and does not plan to pay dividends in the foreseeable future, and, therefore, used an expected dividend yield of zero in the valuation model.

The following is a summary of option activity under the 2015 Plan:

	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (In years)	Aggregate Intrinsic Value
Outstanding at December 31, 2019	3,156,576	$0.44	8.9	$ 1,267
Granted	1,312,547	0.68		
Exercised	(276,893)	0.44		
Canceled	(271,743)	0.51		
Outstanding at December 31, 2020	3,920,487	$0.51	8.2	$13,882
Exercisable at December 31, 2020	2,123,535	$0.40	7.8	$ 7,765

The table above includes 117,709 and 416,758 of performance-based option shares issued to employees in 2017 and 2019, respectively, with an exercise price of $0.30 and $0.44 per share, respectively, which are shown as granted in 2020. As of the original issuance date, the performance conditions were not established, and therefore there was no grant date as prescribed by ASC 718. In 2020, the options vested as performance conditions were established and determined to have been achieved. We recorded $274 of stock-based compensation expense for such awards in 2020.

The table above excludes 21,459 of performance-based option shares issued to employees in 2020 with an exercise price of $0.84 per share. As of December 31, 2020, the performance conditions of such options have yet to be established and therefore there is no grant date as prescribed by ASC 718.

The weighted-average fair value of options granted to employees in the year ended December 31, 2020 and 2019 was $0.44 and $0.23 per share per share, respectively, and was calculated using the following estimated assumptions:

	Year ended December 31, 2020	Year ended December 31, 2019
Weighted-average risk-free interest rate	0.8%	2.2%
Expected dividend yield	0%	0%
Expected volatility	46.6%	44.2%
Expected term	5.4 years	5.9 years

Stock-based compensation related to the Company's stock-based awards was recorded as an expense and allocated as follows:

	Year ended December 31,	
	2020	2019
Cost of goods sold	$ 7	$ 2
Selling, general and administrative	347	103
Research and development	123	48
Total stock-based compensation	$477	$153

As of December 31, 2020 and 2019, there was $478 and $446, respectively, of total unrecognized compensation cost related to non-vested stock options granted to employees under the 2015 Plan. The Company expects to recognize that cost over a remaining weighted-average period of 2.8 and 2.6 years as of December 31, 2020 and 2019, respectively. Such amounts exclude the performance grant options noted above.

Stock incentive awards to nonemployees were determined to be immaterial as of December 31, 2020 and 2019.

(12) Income taxes

The components of net income (loss) before income taxes for the years ending December 31, 2020 and 2019 is as follows:

	December 31, 2020	December 31, 2019
Domestic	(16,781)	(14,665)
Foreign	117	108
Total	$(16,664)	$(14,557)

The Company's income tax provision for the years ending December 31, 2020 and 2019 is as follows:

	December 31, 2020	December 31, 2019
Federal	—	—
State	5	16
Foreign	30	23
Total current tax provision	$35	$ 39
Federal	2	64
State	5	91
Foreign	—	—
Total deferred tax provision	$ 7	$155
Total tax provision	$42	$194

A reconciliation between income tax benefit and the expected tax benefit at the statutory rate for the years ended December 31, 2020 and 2019 is as follows:

	2020	2019
Federal statutory rate	21.00%	21.00%
State rate, net of federal benefit	4.09%	4.98%
Permanent differences	(1.23)%	(0.63)%
Tax credits generated	7.01%	6.03%
Change in valuation allowance	(24.49)%	(23.55)%
Uncertain tax positions	(5.91)%	(10.46)%
Foreign rate differential	0.02%	0.01%
Other items	(0.74)%	1.29%
Effective tax rate	(0.25)%	(1.33)%

The significant components of the Company's net deferred tax liability consist of the following at December 31, 2020 and 2019:

Deferred tax assets (liabilities):	December 31, 2020	December 31, 2019
Deferred tax assets		
Net operating losses	$ 10,397	$ 6,135
Accruals & reserves	379	272
Intangibles	291	217
Other	186	441
Gross deferred tax assets	11,253	7,065
Valuation Allowance	(10,750)	(6.668)
Net deferred tax assets	503	397
Deferred tax liabilities		
Depreciation	(237)	(129)
Goodwill	(436)	(431)
Net deferred tax liability	$ (170)	$ (163)

ASC 740 requires a valuation allowance to reduce the deferred tax assets reported if, based on the weight of available evidence, it is more likely than not that some portion or all the deferred tax assets will not be realized. Based upon the level of historical U.S. losses and future projections over the period in which the net deferred tax assets are deductible, at this time, management believes it is more likely than not that the Company will not realize the benefits of these deductible differences, and as a result the Company continues to maintain a valuation allowance for the full amount of the 2020 deferred tax assets. The increase in the 2020 valuation allowance is primarily attributable to the current year loss.

As of December 31, 2020 and 2019, for federal income tax purposes the Company had total net operating loss carryforwards of approximately $41,315 and $24,353, respectively. As of December 31, 2020, approximately $2,567 will begin to expire in 2036 and approximately $38,749 of the net operating losses will have an indefinite carryforward as a result of the Tax Cuts and Jobs Act. For state income tax purposes, as of December 31, 2020 and December 31, 2019 the Company had net operating loss carryforwards of approximately $26,161 and $15,310, respectively, which begin to expire in 2036.

As of December 31, 2020 and 2019, the Company has available federal research development tax credit carryforwards of approximately $1,544 and $943, respectively. The federal research credits will begin to expire in 2036. As of December 31, 2020 and December 31, 2019, the Company has available state research development tax credit carryforwards of approximately $1,220 and $734, respectively. The state tax credit carryforwards consist of credits with both a limited carryforward period and unlimited carryforward period. Unused credits with a limited carryforward period will begin to expire in 2032.

Under the provisions of the Internal Revenue Code, the net operating loss and tax credit carryforwards are subject to review and possible adjustment by the Internal Revenue Service and state tax authorities. Net operating loss and tax credit carryforwards may become subject to an annual limitation in the event of certain cumulative changes in the ownership interest of significant shareholders over a three-year period in excess of 50%, as defined under Sections 382 and 383 of the Internal Revenue Code, respectively, as well as similar state provisions. This could limit the amount of tax attributes that can be utilized annually to offset future taxable income or tax liabilities. The amount of the annual limitation is determined based on the value of the Company immediately prior to the ownership change. Subsequent ownership changes may further affect the limitation in future years. The Company has completed equity financings transactions which may have resulted in a change in control as defined by Sections 382 and 383 of the Internal Revenue Code, or could result in a change in control in the future. The Company does not believe the impact of any limitation on the use of its net operating loss or credit carryforwards will have a material impact on the Company's consolidated financial statements since the Company has a full valuation allowance against its deferred tax assets due to the uncertainty regarding future taxable income for the foreseeable future.

The Company has not yet completed a study of its research and development credit carryforwards. Once completed, this study may result in an adjustment to the research and development credit carryforwards claimed on the tax returns. Until such time a research credit study is completed, the Company will not record an asset for research credits claimed on the tax returns. If an adjustment is required at the time the study is completed, this adjustment would be recorded as an adjustment to the deferred tax asset for the research and development credit carryforward and the valuation allowance.

A rollforward of the uncertain tax position that was primarily related to our research and development tax credits is as follows (in thousands):

Uncertain tax positions at December 31, 2018	$ —
Increase in uncertain tax positions in the current period	1,677
Uncertain tax positions at December 31, 2019	1,677
Increase in uncertain tax positions	1,086
Uncertain tax positions at December 31, 2020	2,763

Uncertain tax positions of $2.8 million will impact our tax rate if realized.

Interest and penalty charges, if any, related to uncertain tax positions would be classified as income tax expenses in the accompanying Consolidated statements of operations. At December 31, 2020 and 2019, the Company had no accrued interest or penalties related to uncertain tax positions.

The Company files income tax returns in the U.S. federal tax jurisdiction and various state jurisdictions. Since the Company is in a loss carryforward position, the Company is generally subject to examination by the U.S. federal, state and local income tax authorities for all years in which a loss carryforward is available. The statute of limitations for assessment by federal and state tax jurisdictions in which the Company has business operations is open for tax years ending December 31, 2016 and after. The tax years subject to examination vary by jurisdiction.

(13) Commitments and contingencies

Operating Leases

In November 2017, the Company entered into a month to month tenancy agreement for office and laboratory space in Menlo Park, CA. In connection with this agreement, the Company paid a security deposit totaling $56, which is recorded as a component of prepaid expenses and other current assets in the Consolidated Balance Sheet. The Company additionally entered into a tenancy agreement for office and laboratory space in Hopkinton, MA as part of the Transition Services Agreement with PKI in 2018. This tenancy agreement expired in October 2019.

In July 2019, the Company entered into a seven-year office lease agreement for office and laboratory space in Marlborough, MA. In connection with this agreement, the Company paid a security deposit totaling $450 in the form of a letter of credit, which is recorded as restricted cash in the Consolidated Balance Sheet. Additionally, in July 2019, the Company signed a seven-year lease agreement for office and laboratory space in Menlo Park, CA. In connection with this agreement, the Company paid a security deposit totaling $181, which is recorded as a component of long-term assets in the Consolidated Balance Sheet; the lease commencement date was May 2020.

Contractual cash payments for the Marlborough and Menlo Park lease by fiscal year are as follows:

2021	$1,140
2022	$1,179
2023	$1,219
2024	$1,259
2025	$1,300
Thereafter	$1,399
Total	$7,496

Total rent expense for the years ended December 31, 2020 and 2019 was $1,169 and $927, respectively.

License Agreements

In November 2015, the Company entered into a license agreement with The Board of Trustees of the Leland Stanford Junior University (“Stanford”), pursuant to which Stanford granted the Company an exclusive, worldwide, sublicensable license under certain patent rights to make, use, import and commercialize products for diagnostic, industrial and research and development purposes. The Company agreed to pay annual license maintenance fees ranging from $20 to $50 for the royalty-bearing license to certain patents. The Company also issued a total of 91,559 shares of Class B common stock pursuant to the agreement in 2015, which were recorded at fair value at the date of issuance. The Company is required to pay royalties on net sales of products that are covered by patent rights under the agreement at a rate of 2.25%, subject to reductions and offsets in certain circumstances.

In September 2018, in connection with the acquisition of the QPS division of PKI, as further detailed in Note 4, the Company entered into a License Agreement with PKI, pursuant to which PKI granted the Company an exclusive, nontransferable, sublicensable license under certain patent rights to make, use, import and commercialize QPS products and services. The Company is required to pay royalties on net sales of products and services that are covered by patent rights under the agreement at a rate ranging from 1.0% to 7.0%. The Company recorded approximately $1.8 million and $2.5 million of accrued royalties in connection

with this agreement during the years ended December 31, 2020 and 2019, respectively, payable in the first quarter of 2021 and 2020, respectively.

Transition Services Agreement

In September 2018, in connection with the acquisition of the QPS division of PKI, the Company entered into a Transition Services Agreement under which PKI will continue to provide various services (i.e. manufacturing, distribution) to the Company relating to the QPS division over a period of one year in exchange for payment. Over the term of the Transition Services Agreement, the Company will provide PKI with instrument demand forecasts for production and purchase orders specifying the quantity of items (i.e. instruments, consumables) to be purchased. Upon termination of the Agreement, all raw materials, work in process, replacement parts, supplies, and finished goods in the possession of PKI and not already owned by the Company will be purchased by the Company per the associated pricing list in the Transition Services Agreement. The nature of the future components of the Transition Services Agreement, and the amount of goods to be purchased from PKI upon termination of the Transition Services Agreement, is inherently variable based on the unknown future quantity of goods to be produced and goods and services to be provided to the Company under the terms of the Transition Services Agreement. The Company paid $3,957 in 2019 for such inventory. In addition, the Company incurred expense of $3,408 to PKI under the Transition Services Agreement in 2019, which was terminated as of December 31, 2019.

Research Agreements

In 2019 the Company entered into a research arrangement with an unrelated third party. Under this arrangement, we are obligated to pay such third party $0.5 million, $0.4 million, and $0.1 million in 2021, 2022, and 2023, respectively.

(14) Net loss and unaudited pro forma net loss per share attributable to common stockholders

Potentially issuable shares of common stock include shares issuable upon the exercise of outstanding employee stock option awards. Awards granted with performance conditions are excluded from the shares used to compute diluted earnings per share until the performance conditions associated with the awards are met.

The following table sets forth the computation of basic and diluted earnings per common share:

	Year ended December 31,	
	2020	2019
Net loss	$ (16,706)	$ (14,751)
Dividends accrued on redeemable convertible preferred stock	(4,760)	(3,260)
Accretion of redeemable convertible preferred stock	(296)	(296)
Adjusted net loss attributable to common stockholders	$ (21,762)	$ (18,307)
Weighted average common shares used in net loss per share attributable to common stockholders, basic and diluted	2,370,574	2,276,048
Basic and diluted net loss per common share outstanding	$ (9.18)	$ (8.04)

The Company's potential dilutive securities, which include stock options, convertible preferred stock, and warrant, have been excluded from the computation of diluted net loss per share attributable to common stockholders whenever the effect of including them would be to reduce the net loss per share. In periods where there is a net loss, the weighted average number of common shares outstanding used to calculate both basic and diluted net loss per share attributable to common stockholders is the same. The following potential common shares, presented based on amounts outstanding at each period end, were excluded from the calculation of diluted net loss per share attributable to common stockholders for the periods indicated because including them would have had an anti-dilutive effect:

	Year Ended December 31,	
	2020	2019
Series A Convertible Preferred Stock (as converted to common stock)	2,151,641	2,151,641
Series B Redeemable Convertible Preferred Stock (as converted to common stock)	5,886,405	5,886,405
Series C Redeemable Convertible Preferred Stock (as converted to common stock)	11,473,110	11,473,110
Series D Redeemable Convertible Preferred Stock (as converted to common stock)	7,034,423	7,034,423
Outstanding stock options	3,920,487	3,156,576
Performance-based stock options	21,459	534,467
Warrant to purchase Series D convertible preferred stock (as converted to common stock)	158,274	158,274
Total	30,645,799	30,394,896

Unaudited pro forma net loss attributable to common stockholders per share

In contemplation of an initial public offering ("IPO"), the Company has presented unaudited pro forma basic and diluted net loss per share attributable to common stockholders for the year ended December 31, 2020. Unaudited pro forma basic net loss per share attributable to common stockholders as of December 31, 2020 is computed to give effect to adjustments to the denominator to effect the conversion of all outstanding shares of the Company's convertible preferred stock into 26,545,579 shares of common stock as if the conversion had occurred as of January 1, 2020 or the original date of issuance, if later.

Unaudited pro forma diluted net loss is the same as unaudited pro forma basic net loss per share attributable for the period as the impact of any potentially dilutive securities was anti-dilutive. The pro forma net loss per share attributable to common stockholders does not include proceeds to be received from nor does it include shares expected to be sold in the assumed IPO.

The following table sets forth the computation of the unaudited pro forma basic and diluted net loss per share attributable to common stockholders and gives effect to the conversion of all outstanding convertible preferred stock (in thousands, except share and per share data):

	Year ended December 31, 2020
Net loss attributable to common stockholders	$ (21,762)
Pro forma net loss attributable to common stockholders	
Denominator:	
Weighted average common shares outstanding, basic and diluted	2,370,574
Pro forma adjustment to reflect automatic conversion of convertible preferred stock to common stock upon the completion of the proposed IPO	26,545,579
Pro forma weighted average common shares outstanding, basic and diluted	28,916,153
Pro forma net loss per share attributable to common stockholders, basic and diluted	$ (0.75)

(15) Segments

Operating segments are defined as components of an enterprise about which separate financial information is available that is evaluated regularly by the chief operating decision maker, or decision-making group, in deciding how to allocate resources and in assessing performance. The Company's chief operating decision maker is its Chief Executive Officer. The Company has one business activity and there are no segment managers who are held accountable for operations. Accordingly, the Company has a single reportable segment structure. The Company's principal operations and decision-making functions are located in the United States.

The following table provides the Company's revenues by geographical market based on the location where the services were provided or to which product was shipped:

	Year Ended December 31,	
	2020	2019
North America	$20,178	$22,202
APAC	10,409	9,444
EMEA	11,856	10,590
Total Revenue	$42,443	$42,236

	Year Ended December 31,	
	2020	2019
North America	47%	53%
APAC	25%	22%
EMEA	28%	25%
Total Revenue	100%	100%

North America includes the United States and related territories, as well as Canada. APAC also includes Australia. For the period ended December 31, 2020 and 2019, we had one country with 11% and another country with 12% of total revenue, respectively.

As of December 31, 2020 and 2019, substantially all of the Company's long-lived assets are located in the United States of America.

(16) Related party transactions

For the year ended December 31, 2020 and 2019, the Company recognized $0.2 million and $0.4 million in revenue, respectively, and $0.1 million and $0.2 million in cost of goods sold, respectively with Stanford University. Stanford University holds greater than 5% of our total outstanding shares.

During the year ended December 31, 2020, the Company incurred costs of goods sold of approximately $1.5 million related to sales of consumables manufactured by Argonaut Manufacturing services. As of December 31, 2020 and 2019, $1.3 million and $0.3 million, respectively, is included in inventory related to consumables manufactured by Argonaut Manufacturing services. As of December 31, 2020 and 2019, the Company had $0.6 million and $0.5 million in accounts payable, respectively, due to Argonaut Manufacturing services. Argonaut Manufacturing services is a portfolio company of Telegraph Hill Partners, which holds greater than 5% of our total outstanding shares.

(17) Subsequent events

The Company has evaluated subsequent events from the Consolidated Balance Sheet date through March 12, 2021, which is the date the consolidated financial statements were originally issued and through April 12, 2021 for disclosure purposes.

(a) Increase in shares available for issuance under the 2015 Plan

In February 2021, the board of directors approved and in April 2021, its stockholders approved the number of shares of common stock authorized for issuance under the 2015 Plan to be increased from 4,947,214 shares to 6,020,175 shares (an increase by 1,072,961 shares).

(b) Reverse stock split and conversion of Class B common stock to Class A common stock

On April 8, 2021, the Board of Directors of the Company approved a 1-for-2.33 reverse stock split of its issued and outstanding common stock and a proportional adjustment to the existing conversion ratios for each series of the Company's convertible preferred stock, which was effected on April 9, 2021. All issued

and outstanding shares of common stock and related per share amounts contained in the accompanying consolidated financial statements have been retroactively adjusted to reflect this reverse stock split for all periods presented. The par value of the authorized stock was not adjusted as a result of the reverse stock split. Other than the par value, all share and per share data shown in the accompanying financial statements and related notes have been retroactively revised to reflect the reverse stock split and adjustment of the Preferred Stock conversion ratios. On April 8, 2021, the Board of Directors approved the conversion of all outstanding shares of the Company's Class B common stock on a 1 for 1 basis into 2,563,765 shares of the Company's Class A common stock, which will be effected upon the completion of the proposed IPO.

(c) Approval of the 2021 Equity Incentive Plan

On March 24, 2021, the Company's board of directors and on April 8, 2021, its stockholders approved and adopted the 2021 Equity Incentive Award Plan (the "2021 Plan"). The 2021 Plan will become effective immediately prior to and contingent upon the closing of the IPO. Under the 2021 Plan, the Company may grant stock options, stock appreciation rights, restricted stock, restricted stock units, and other stock or cash-based awards to individuals who are then employees, officers, directors or consultants of the Company. A total of 1,727,953 shares of common stock were approved to be initially reserved for issuance under the 2021 Plan. The number of shares under the 2015 Plan subject to outstanding awards as of the effective date of the 2021 Plan that are subsequently canceled, forfeited or repurchased by the Company will be added to the shares reserved under the 2021 Plan. In addition, the number of shares of common stock available for issuance under the 2021 Plan will be automatically increased on the first day of each calendar year during the ten-year term of the 2021 Plan, beginning with January 1, 2022 and ending with January 1, 2030, by an amount equal to 5% of the outstanding number of shares of the Company's common stock on December 31st of the preceding calendar year or such lesser amount as determined by the Company's board of directors.

(d) Approval of the 2021 Employee Stock Purchase Plan

On March 24, 2021, the Company's board of directors and on April 8, 2021, its stockholders approved and adopted the 2021 Employee stock Purchase Plan (the "ESPP"). The ESPP will become effective on immediately prior to and contingent upon the closing of the IPO. The ESPP permits participants to purchase common stock through payroll deductions of up to 15% of their eligible compensation. A total of 172,795 shares of common stock were approved to be initially reserved for issuance under the ESPP. In addition, the number of shares of common stock available for issuance under the ESPP will be automatically increased on the first day of each calendar year during the first ten-years of the term of the ESPP, beginning with January 1, 2022 and ending with January 1, 2030, by an amount equal to 0.5% of the outstanding number of shares of the Company's common stock on December 31st of the preceding calendar year or such lesser amount as determined by the Company's board of directors.

6,580,000 Shares

Akoya Biosciences, Inc.

Common Stock

Prospectus

Joint Book-Running Managers

J.P. Morgan **Morgan Stanley** **Piper Sandler** **Canaccord Genuity**

Through and including May 10, 2021 (the 25th day after the date of this prospectus), all dealers effecting transactions in our common stock, whether or not participating in our initial public offering, may be required to deliver a prospectus. This delivery requirement is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.