

Foundation Medicine, Inc.
Form 10-K
March 07, 2018

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2017

or

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from to

Commission File Number 001-36086

FOUNDATION MEDICINE, INC.

(Exact name of registrant as specified in its charter)

Delaware	27-1316416
(State or other jurisdiction of	(IRS Employer
incorporation or organization)	Identification No.)

150 Second Street
Cambridge MA, 02141

(Address of principal executive offices, including zip code)

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Registrant's Telephone Number, Including Area Code:

(617) 418-2200

Securities registered pursuant to Section 12(b) of the Act:

Common Stock, \$0.0001 Par Value	The NASDAQ Global Select Market
(Title of each class)	(Name of each exchange on which registered)

Securities registered pursuant to Section 12(g) of the Act: NONE

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, an emerging growth company, or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer," "emerging growth company," and "smaller reporting company" in 12b-2 of the Exchange Act.

Large accelerated filer	Accelerated filer
Non-accelerated filer	Smaller reporting company
Emerging growth company	

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

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Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

As of June 30, 2017, the last business day of the registrant's most recently completed second fiscal quarter, the aggregate market value of common stock held by non-affiliates of the registrant computed by reference to the last reported sale price of the registrant's common stock on the Nasdaq Global Select Market as of such date was approximately \$573.7 million. As of March 2, 2018, there were 36,881,792 shares of the registrant's common stock, \$0.0001 par value per share, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

The registrant intends to file a definitive proxy statement pursuant to Regulation 14A within 120 days of the end of the fiscal year ended December 31, 2017. Portions of such definitive proxy statement are incorporated by reference into Part III of this Annual Report on Form 10-K.

FOUNDATION MEDICINE, INC.

ANNUAL REPORT ON FORM 10-K

For the Year Ended December 31, 2017

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PART I

This Annual Report on Form 10-K, or this Annual Report, contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and is subject to the “safe harbor” created by those sections. Any statements about our expectations, beliefs, plans, objectives, assumptions or future events or performance are not historical facts and may be forward-looking. Some of the forward-looking statements can be identified by the use of forward-looking terms such as “believes,” “expects,” “may,” “will,” “should,” “seek,” “intends,” “plans,” “estimates,” “projects,” “anticipates,” or other comparable terms. Forward-looking statements involve risk and uncertainties. We cannot guarantee future results, levels of activity, performance, or achievements, and you should not place undue reliance on our forward-looking statements. Our actual results may differ significantly from the results discussed in the forward-looking statements. Factors that might cause such a difference include, but are not limited to, those set forth in “Item 1A. Risk Factors” and elsewhere in this Annual Report. Except as may be required by law, we have no plans to update our forward-looking statements to reflect events or circumstances after the date of this Annual Report. We caution readers not to place undue reliance upon any such forward-looking statements, which speak only as of the date made.

Unless the content requires otherwise, references to “Foundation Medicine,” “the Company,” “we,” “our,” and “us,” in this Annual Report refer to Foundation Medicine, Inc. and its subsidiaries.

ITEM 1. BUSINESS

Overview

We are a molecular information company focused on fundamentally changing the way in which patients with cancer are evaluated and treated. We believe an information-based approach to making clinical treatment decisions based on comprehensive genomic profiling, or CGP, will become standard of care for patients with cancer. We derive revenue from selling services that are enabled by our molecular information platform to physicians and biopharmaceutical companies. Our platform includes proprietary methods and algorithms for analyzing specimens across all types of cancer, and for incorporating that information into clinical care in a concise and user-friendly fashion. Our services provide genomic insights about each patient’s individual cancer obtained from that analysis, enabling physicians to optimize treatments in clinical practice and biopharmaceutical companies to develop targeted therapies and immunotherapies more effectively. We believe we have a significant first-mover advantage in providing high-quality, CGP and molecular information services globally on a commercial scale.

We offer a full suite of validated clinical assays based on our CGP approach:

- FoundationOne® for solid tumors, our flagship assay, that we commercialized in 2012;
- FoundationOne®Heme for blood-based cancers, or hematologic malignancies, including leukemia, lymphoma, and advanced sarcomas, that we commercialized in 2013;
- FoundationACT® (Assay for Circulating Tumor DNA), our blood-based (liquid biopsy) assay to evaluate circulating tumor DNA, or ctDNA, which is DNA shed from tumors that circulates in blood plasma outside of cells, that we commercialized in 2016;
- FoundationFocus™ CDx BRCA, a companion diagnostic assay, approved by the U.S. Food and Drug Administration, or FDA, to aid in identifying women with ovarian cancer for whom treatment with Rubraca™ (rucaparib) is being considered, that we commercialized in 2016; and,
- FoundationOne CDx™, the first FDA approved broad companion diagnostic assay for solid tumors. FoundationOne CDx was approved by the FDA on November 30, 2017 as part of a parallel review process for breakthrough devices with FDA and The Centers for Medicare and Medicaid Services, or CMS.

To accelerate our commercial growth and enhance our competitive advantage, we are continuing to innovate and commercialize new molecular information services for physicians and biopharmaceutical companies, pursue

reimbursement from regional and national commercial third-party payors and government payors, strengthen our commercial organization, introduce new marketing, education, provider, policy, and advocacy engagement efforts, seek inclusion of molecular information services into oncology clinical care treatment guidelines published by accredited cancer care organizations, grow our molecular information knowledgebase, called FoundationCore, expand global access to our molecular information services through our broad collaboration with affiliates of Roche Holdings, Inc., or Roche, publish scientific and medical advances, broaden our collaborations with biopharmaceutical companies, particularly in the areas of biomarker discovery, targeted and immuno-oncology, and companion diagnostics development, and foster relationships across the global oncology community.

The Shift to Personalized Cancer Care

The cancer treatment paradigm is evolving rapidly, and we believe there is now widespread recognition that cancer is a disease of the genome, rather than a disease defined solely by its specific anatomical location in the body. Today, physicians increasingly use precision medicines to target cancers based on the specific genomic alterations driving their growth. Furthermore, in May 2017, the

FDA granted its first tissue/site-agnostic approval. We believe this signals the potential for additional FDA approvals based on the presence of genomic biomarkers as opposed to the anatomic location of the cancer.

We believe physicians need molecular information about their patients' unique cancers to determine the optimal course of treatment.

We also believe the oncology community needs comprehensive molecular information services that can assess the known biologically relevant genomic alterations and cancer biomarkers from a patient's disease and distill complex molecular information into a concise and actionable format. We designed our suite of clinical molecular information services to meet these needs. We believe a CGP approach to providing molecular information for use in clinical settings addresses an area of significant unmet medical need for patients suffering from advanced, or active metastatic, cancers. We estimate that there are approximately 1.1 million patients per year in the United States with newly-diagnosed or recurrent, active metastatic cancers who fall into challenging treatment categories, including patients who have rare or aggressive diseases, patients whose disease has progressed after standard treatments, and patients who have tested negative under, or been ineligible for, traditional molecular diagnostic tests. We are initially focusing on these patients because we believe this patient population will benefit most from our comprehensive molecular information products.

To maintain our market leadership position and offer physicians and the biopharmaceutical industry a full suite of innovative molecular information services, we continue to innovate new molecular information tests and services that can help advance personalized cancer care. For example, in November 2017, we announced FDA approval and receipt of a preliminary NCD from CMS for FoundationOne CDx, the first FDA-approved broad companion diagnostic for solid tumors. FoundationOne CDx is the next evolution of our flagship assay, FoundationOne. FoundationOne CDx provides physicians with a clinically and analytically validated platform to help guide treatment decisions and enable efficient patient access to targeted therapies, immunotherapies, and clinical trials. By enabling physicians to use a single, FDA-approved companion diagnostic assay for multiple drugs requiring a companion diagnostic, we believe we can reduce much of the guesswork that often arises when selecting a diagnostic test for cancer. Our approach is designed to help assure physicians and their patients that they have the information necessary to make an informed treatment decision based on a comprehensive view of companion diagnostic claims, as well as potential treatment options based on oncology clinical care guidelines, peer-reviewed literature, and clinical trial options.

At the time of its approval, FoundationOne CDx guided to 17 targeted therapies across five of the most common solid tumors: NSCLC, CRC, ovarian cancer, breast cancer, and melanoma. FoundationOne CDx also reports predictive genomic signatures for immuno-oncology treatment selection including microsatellite instability (MSI) and tumor mutational burden (TMB). We intend to update FoundationOne CDx over time with new FDA-approved companion diagnostic claims. As such, we believe FoundationOne CDx enables the practice of precision oncology by identifying more patients who may benefit from targeted treatment, immunotherapy approaches, and clinical trials than traditional single gene testing methods.

FoundationOne CDx was approved by the FDA and granted a preliminary NCD by CMS as part of a process called Parallel Review for breakthrough devices. Concurrent with our FDA approval, we received a preliminary NCD from CMS. The preliminary NCD proposes to cover FoundationOne CDx for Medicare beneficiaries and for individuals with Medicare Advantage plans who meet the eligibility criteria outlined in the to-be-finalized coverage policy. We received our unique PLA billing code for FoundationOne CDx in February 2018 and expect to commercialize FoundationOne CDx in early 2018.

As the number of available targeted therapies and immunotherapies expands and as physicians gain further experience using comprehensive molecular information in their routine treatment decisions, we believe that the potential addressable market for comprehensive molecular information services will expand over the next five years to include most patients who have metastatic disease and additional patients with earlier stage disease, to identify patients with predictive tumor biomarkers for whom immunotherapy may provide the best course of treatment, and for liquid

biopsy services for patients from whom a tissue biopsy is not available. We estimate that this potential market expansion could bring the total number of patients who could benefit from our approach in the United States to approximately two million annually.

The use of personalized medicine in oncology is continually evolving, and we believe the understanding of the genomic changes in each patient's tumor DNA is enabling a shift in clinical treatment from a one-size-fits-all approach to one that is highly individualized based on comprehensive molecular insights. As such, the biopharmaceutical industry is accelerating research and development of targeted therapies and immunotherapies. For example, we believe there are more than 630 targeted therapies and immunotherapies for cancer care in late-stage clinical development by biopharmaceutical companies, as well as thousands of open and enrolling clinical trials ongoing in the United States. To keep pace with this shift to personalized cancer care, there is an increasing focus on the use of companion diagnostics to guide physicians in selecting the most appropriate therapy for each patient, and a desire to accelerate biopharmaceutical development of new, innovative therapies.

We believe FoundationOne CDx, along with our full suite of molecular information services, provides us with significant competitive differentiation and a first-mover advantage in our biopharmaceutical and clinical businesses. FoundationOne CDx provides our biopharmaceutical partners with an FDA-approved platform for companion diagnostic development which may mitigate developmental, operational, and commercial risks in companion diagnostic development. FoundationOne CDx received FDA approval that included companion diagnostic claims for 17 targeted therapies indicated for treatment in five of the most common solid tumor types. Over time, we expect to expand the number of companion diagnostic claims approved by the FDA on FoundationOne CDx. For

example, we have announced that we are developing companion diagnostics to be included on FoundationOne CDx for several of our partners including AstraZeneca PLC, or AstraZeneca; Pfizer, Inc., or Pfizer; and Roche.

As a precursor to the FDA approval of FoundationOne CDx, in December 2016, we received FDA approval for, and began commercialization of, FoundationFocus CDx BRCA, a companion diagnostic assay to aid in identifying women with ovarian cancer for whom treatment with Rubraca™ (rucaparib), a therapy offered by Clovis Oncology, Inc., or Clovis, is being considered. This companion diagnostic claim is now included on FoundationOne CDx. We believe the experience of gaining FDA approval for FoundationFocus CDx BRCA was instrumental in our FDA approval for FoundationOne CDx.

Our Unique and Synergistic Business

We believe we have a unique and synergistic business model comprised of:

- A robust clinical business providing molecular information to physicians;
- A strong biopharmaceutical business where our molecular information services enable us to serve as a powerful research and development partner; and
- Bioinformatics and data analytics capabilities that enable us to provide molecular insights that inform our partners' development strategies.

Each facet of our business enables us to continually innovate and update our molecular information services so that all patients with advanced cancer have access to personalized care.

We are dedicated to ongoing innovation of our molecular information platform and new product pipeline. Through our synergistic business model that incorporates broad biopharmaceutical partner relationships, we have a unique opportunity to generate revenue and to provide insights into new cancer genes and important biomarkers under investigation. These new genes and biomarkers can then be incorporated into our molecular information platform at an early stage and allow us to participate in the development of the newest oncology therapeutics and clinical practice.

For example, our efforts have yielded enhancements to our CGP platform over time:

- In 2017, we continued to build upon the body of evidence supporting tumor mutational burden (TMB) as a reliable, predictive marker of response to immunotherapy. At the 2017 Annual Meeting of the American Society of Clinical Oncology, or ASCO, we presented data showing that measuring TMB with FoundationOne can predict responses to FDA-approved anti-PD-1/anti-PD-L1 immunotherapies in triple-negative breast cancer, ovarian cancer, metastatic melanoma, biliary tract cancer, and cancer of unknown primary, pointing to potentially new subsets of patients who may benefit from this therapeutic strategy. This data builds off data previously presented at ASCO 2016 demonstrating that FoundationOne may help predict response to cancer immunotherapy agents across a variety of advanced cancers by integrating two independent quantitative markers, TMB, and micro-satellite instability, or MSI, as part of the assay. Specifically, TMB calculated by Foundation Medicine successfully predicted a greater likelihood of patient response and longer response duration to cancer immunotherapies in patients with advanced bladder cancer, metastatic melanoma, and colorectal and lung cancers.
- We further presented new and compelling data at the 2017 Annual Meeting of the American Society of Hematology, or ASH, using FoundationOneHeme. One data presentation showed that more than one-quarter of patients with plasma

cell leukemia, or PCL, had high TMB indicating the potential for response to immuno-oncology treatment strategies, including checkpoint inhibitors. Currently, less than 50 percent of PCL patients achieve complete remission with current standard of care treatments, underscoring the need for new treatment options for these patients and the importance of measuring TMB as part of genomic profiling.

At the 2017 European Society for Medical Oncology Annual Meeting, we presented validation data for our novel assay measuring tumor mutational burden from blood, or bTMB. The data presented was from a retrospective analysis from Roche/Genentech's Phase II POPLAR and Phase III OAK studies that enabled analytic and clinical validation for our bTMB assay. The studies demonstrate that high bTMB as measured by our novel assay is associated with response to atezolizumab in individuals with previously-treated NSCLC, potentially offering a new option to expand personalized care options for patients with advanced cancer. Based on these findings, our bTMB assay has been integrated as part of Roche/Genentech's prospective, randomized Phase III Blood First Assay Screening Trial (BFAST) as a companion diagnostic assay to investigate bTMB as a non-invasive biomarker of response to first-line atezolizumab in advanced NSCLC patients. As cancer immunotherapy continues to emerge as a therapeutic tool for patients, there is a significant need for a non-invasive measure of TMB in patients where tissue is not available or when a tissue biopsy is not feasible.

TMB and MSI are reported on all FoundationOne CDx, FoundationOne and FoundationOneHeme cases. We expect further development of our bTMB assay as a companion diagnostic, providing an important predictive and complementary solution to add to our FoundationACT liquid biopsy platform, and ultimately enabling physicians to make informed selection of targeted or immunotherapy treatments if tissue is unavailable.

We believe we have a significant first mover advantage in building a compelling portfolio of molecular information services that comprehensively assesses cancer simultaneously for immunotherapy biomarkers such as MSI and TMB as well as for four classes of genomic alterations (i.e., base pair substitutions, copy number alterations, short insertions and deletions, or indels, and gene rearrangements) across all cancer-related genes with the sensitivity and specificity required for routine medical practice. We continually publish or present our analytic validation to demonstrate the accuracy and reliability of our assays. For example:

FoundationOne: Our analytic validation for FoundationOne was published in Nature Biotechnology in October 2013.

FoundationOneHeme: Together with our partner, Memorial Sloan Kettering Cancer Center, we published our analytic validation for FoundationOneHeme in the journal Blood in 2016.

FoundationACT: We presented analytic validation data for FoundationACT in the 2016 Advances in Genome Biology and Technology, or AGBT, Conference and at the 2016 Annual Meeting of the American Association for Cancer Research, or AACR, demonstrating that our platform achieves high unique coverage for our test from limited ctDNA input which enables accurate detection of base substitutions, indels, and genomic rearrangements at very low tumor content, as well as copy number amplifications with performance specifications equivalent to those for FoundationOne. Subsequently, we submitted a manuscript for publication.

- FoundationFocus CDx BRCA: FDA approved based on analytic and clinical validation.

FoundationOne CDx: We presented analytic validation data for FoundationOne CDx at the 2017 International Association for the Study of Lung Cancer, or IASLC, 18th World Conference on Lung Cancer, or WCLC. Data demonstrated high concordance with multiple companion diagnostics and other single marker assays currently used to match targeted therapies to people with certain types of NSCLC, melanoma, CRC, ovarian cancer or breast cancer.

We believe the genomic alterations identified for each patient by our CGP assays should be accompanied by the most current and relevant scientific and medical literature related to those alterations, and that this information should be presented in a clear and concise manner to enable informed clinical treatment decisions and to facilitate development of novel therapeutics. Our molecular information knowledgebase, FoundationCore, amasses genomic alteration data from every tumor sequenced with one of our CGP assays, combined with a highly curated database of clinical findings and evidence associated with these genomic results. We have sequenced approximately 180,000 sample profiles as of December 31, 2017, representing more than 150 tumor types, and we believe FoundationCore is the largest real-world cancer genomics database of its kind. Our test reports contain combined genomics information with scientific and

medical literature specific to the identified genomic alterations detected in a patient's tumor. These patient reports are available to ordering physicians through our Foundation Portal (formerly our Interactive Cancer Explorer, FoundationICE).

In an effort to leverage molecular insights to advance personalized cancer care, we are working to match patients to clinical trials based on the genomics of each patient's unique cancer. Clinical trials often provide opportunities for patients to access targeted therapies and immunotherapies, yet it is estimated that only 3%-4% of patients with cancer in the United States are enrolled in clinical trials. We believe our unique and proprietary decision support applications are a competitive differentiator of our comprehensive molecular information solutions. They may accelerate the adoption of our molecular information services and potentially enable greater patient access to personalized medicine. One example is our innovative program called FoundationSmartTrials, which includes a suite of offerings to help increase patient access to, and provider awareness of, clinical trials, and, in doing so, accelerate drug development for our biopharmaceutical partners.

One such offering in our FoundationSmartTrials program is called Precision Enrollment, which efficiently identifies patients with rare or specific biomarkers and matches them to clinical trials. A second offering in FoundationSmartTrials is our Recruiter tool which is optimized for early-stage trials or trials with broader target profiles. This service identifies qualified patients for potential enrollment at the same institution where they are being treated. We have developed, and are now piloting, additional offerings within the FoundationSmartTrials portfolio. We believe our FoundationSmartTrials program may be a catalyst for precision medicine by enabling greater patient access to personalized therapies and simultaneously enabling our biopharmaceutical partners to accelerate drug development due to optimized patient identification and trial enrollment, while building the necessary evidence base to guide clinical decision-making. We believe the combination of our CGP assays, our FoundationCore knowledgebase, our robust data analytics programs, and our deep and extensive biopharmaceutical relationships uniquely position us to make a significant impact on patient enrollment in oncology clinical trials nationwide.

We have observed significant adoption of our clinical molecular information products in the marketplace, and many thousands of physicians from large academic centers to community-based practices have ordered our molecular information products for clinical use. We believe this breadth of adoption demonstrates the demand for and utility of our comprehensive genomic profiling solutions that help oncologists effectively implement the promise of precision medicine.

We believe our suite of molecular information services have a sustainable competitive advantage because they:

- **Provide comprehensive and reliable identification of clinically relevant information** — FoundationOne currently assesses 315 biologically relevant cancer genes for all four classes of genomic alterations clinically relevant to the treatment of cancer, including TMB and MSI, with high sensitivity and specificity. We believe FoundationOne identifies genomic alterations that many other commercially available “hot spot” diagnostic tests cannot. FoundationOneHeme employs RNA sequencing of 265 genes in addition to DNA sequencing of 406 genes to detect all classes of genomic alterations, including TMB, across genes known to be altered (other than through inherited genetic characteristics), which are also known as somatic alterations, in hematologic malignancies, and in advanced sarcomas, which we believe also will lead to the identification of clinically relevant information. FoundationACT identifies in a cancer patient’s blood all known clinically relevant alterations in 62 genes altered in human solid tumors that are validated targets for therapy or are unambiguous drivers of cancer. The assay has been optimized to overcome the tremendous challenges of detecting low quantities of ctDNA in blood and has been analytically validated for high accuracy across all classes of genomic alterations clinically relevant to the treatment of cancer. FoundationFocus CDx BRCA is the first FDA-approved, tissue-based, genomic assay based on next generation sequencing that detects tumor BRCA1 and BRCA2 mutations (which may include both germline (inherited) and somatic (acquired) mutations) in women with ovarian cancer. FoundationOne CDx is the first FDA-approved broad companion diagnostic assay for solid tumors. FoundationOne CDx currently assesses 324 relevant cancer genes for all classes of genomic alterations, and reports on TMB and MSI. FoundationOne CDx has demonstrated proven concordance with multiple FDA-approved companion diagnostic assays and FDA approval is based on analytical and clinical validation of more than 6,300 samples.
- **Offer a portfolio approach providing oncologists with important options in CGP testing** — We believe we are the only provider of both tissue and liquid biopsy CGP, together with a full range of molecular information products and companion diagnostics for solid tumors and hematologic malignancies. We believe physicians appreciate the ease-of-use and simplicity of ordering from one company that provides a full solution for all CGP testing.
- **Eliminate Barriers to Patient Access** — FDA-approved FoundationOne CDx provides physicians with a single validated, high quality test that looks for all guideline-recommended genes in solid tumors, including companion diagnostic indications with a direct path to therapy. The national coverage determination, or NCD, from CMS, when final, will provide covered access to our test for eligible Medicare beneficiaries, helping to alleviate some of the reimbursement challenges that can be an obstacle for patient access.
- **Incorporate the latest scientific and medical advances** — We have extensive relationships across the scientific and medical oncology communities, including with key thought leaders and leading biopharmaceutical companies. These relationships help us incorporate new cancer genes, important biomarkers, like MSI and TMB, the latest scientific

findings, newly available targeted therapeutics, immunotherapies, and relevant clinical trials into test results of our CGP tests.

Readily integrate into routine clinical practice — Our proprietary sample preparation processes and computational biology algorithms allow us to utilize small amounts of tumor tissue from a wide variety of sample types, including tissue with low tumor purity and from liquid (blood) biopsies, so as to allow for routine specimen collection. We detect and report the clinically relevant genomic alterations, typically within two weeks from the time the specimen is received. We are dedicated to providing high-quality support to our customers, from order initiation and sample acquisition through report delivery and follow-up with our medical affairs team.

Provide clinically relevant information and decision support applications that physicians can use — In a concise report, we communicate the relevant genomic alterations in a patient's cancer and, based on peer-reviewed literature and clinical and governmental databases, match these alterations with targeted therapies, immunotherapies and relevant

clinical trials. FoundationOne CDx will deliver increased simplicity in reporting. We continue to develop innovative new decision support applications, like FoundationSmartTrials, that support informed treatment decision-making and enable improved access to therapies.

We believe we are a unique and highly differentiated molecular information company. The combination of our suite of CGP assays and molecular information services, our world-class laboratories in Cambridge, MA; Research Triangle Park NC; and Penzberg, Germany, our analytic and bioinformatics capabilities, and our genomics knowledgebase, FoundationCore, enable us to be a leader in personalized oncology care and data driven insights, making us a trusted solution partner to the biopharmaceutical industry. Our molecular information platform is currently used by more than 30 biopharmaceutical partners to enhance the development of their targeted oncology therapies and immunotherapies, to identify novel targets and for biomarker discovery, to optimize and accelerate patient selection and recruitment into clinical trials and to rapidly develop companion diagnostics as part of a coordinated regulatory strategy. We believe we are well-positioned to capitalize on additional significant market opportunities with biopharmaceutical partners over the next five years. Our biopharmaceutical partners leverage our molecular information platform in four primary ways to accelerate research, optimize development and enhance commercialization:

• **Molecular profiling:** We use our proprietary comprehensive genomic profiling platform, computational biology, and information technology capabilities to perform both retrospective and prospective analyses of clinical trial patient samples. Our molecular profiling solutions enable novel clinical trial designs, enhance patient selection, identify appropriate patient populations for clinical trials, and identify novel genomic targets. A selection of our biopharmaceutical partners for molecular profiling includes AstraZeneca, Celgene, Clovis, Johnson & Johnson, or J&J, Novartis Pharmaceuticals Corporation, or Novartis, and Roche.

• **Clinical Trials Design and Enrollment Support (or Acceleration):** In addition to customary clinical settings in which physicians prescribe an FDA-approved therapy, approximately 3%-4% of patients with cancer in the United States are currently enrolled in clinical trials of experimental therapies sponsored by biopharmaceutical companies. As we broaden our relationships with current and future biopharmaceutical partners, we expect our molecular information platform to enable an increasing number of cancer patients both within and outside the United States to access clinical trials. Our innovative program, FoundationSmartTrials, includes a suite of offerings to help increase patient access to, and provider awareness of, clinical trials, and, in doing so, accelerate drug development for our biopharmaceutical partners. We believe this program may be a catalyst for precision medicine by enabling greater patient access to personalized therapies and simultaneously enabling our biopharmaceutical partners to accelerate drug development.

• **Companion Diagnostics Development and Approval:** We provide our partners with companion diagnostic development and regulatory support services to help drive their precision medicine strategies. We utilize our FDA-approved FoundationOne CDx and FoundationFocus CDx BRCA tests under Quality System Regulation, or QSR, standards with the aim of developing companion diagnostic assays having a premarket approval, or PMA, from the FDA. Our FDA-approved companion diagnostics platforms offer a significantly streamlined and accelerated path to approval for our biopharmaceutical customers. We are currently working with several biopharmaceutical partners, including AstraZeneca, Bristol-Myers Squibb Company, or BMS, Pfizer, and Roche, among others, to develop companion diagnostics to complement their oncology therapeutic pipelines. We believe our companion diagnostic development work is an integral component of our regulated products strategy and represents the primary engine of new content development for FoundationOne CDx.

• **FoundationCore:** Our FoundationCore knowledgebase now amasses approximately 180,000 real-world, genomic profiles as of December 31, 2017. Our biopharmaceutical partners use the insights we generate from this data for novel target identification, clinical trial design, and product lifecycle management. We leverage our advanced analytics and data sharing capabilities in combination with our FoundationCore database to collaborate with our biopharmaceutical partners to identify new genomic signatures, design development programs to support novel programs and to expand therapeutic treatment franchises. An example of such a collaboration is our work in immunotherapy with our partner Roche, leveraging signatures such as TMB. Against the backdrop of a large number of immunotherapy programs currently in development as well as demand for such treatment options, there is an increasing need by biopharmaceutical companies to partner with us to differentiate their immunotherapy programs

and identify the most appropriate patients for their drugs.

Over time, we intend to expand our ability to capture, aggregate, analyze, and facilitate the broader exchange of genomic data across the global oncology community. We are investing in our technology architecture to allow oncologists to share clinical data. This platform has been deployed within our Precision Medicine Exchange Consortium, or PMEC, and is being deployed with other institutional and biopharmaceutical partners to enable genomic and clinical data sharing in support of research initiatives to advance personalized medicine in cancer. PMEC, which is organized as an unincorporated non-profit association, brings together oncology thought leaders from leading U.S. academic medical centers, hospital systems, and community oncology networks. PMEC has been formed to advance the development and use of precision medicine in oncology. To achieve this purpose, PMEC expects to engage in a number of activities, including establishing an enhanced clinical trials network among its members, exchanging molecular information and clinical outcomes data, and engaging in joint research projects.

Furthermore, through data partnerships with leading technology and software companies such as Flatiron Health, Inc., or Flatiron, we are building a broader data platform around FoundationCore that powers research and discovery. For example, our clinico-genomic database with Flatiron has 33,000 linked clinico-genomic records, and is designed to help researchers and biopharmaceutical partners accelerate the development of targeted therapeutics and immunotherapies to treat cancer. We believe this HIPAA-compliant, clinico-genomic database is one of the largest information efforts of its kind in oncology to integrate genomic profiling data from patients whose tumors were sequenced with our assays together with annotated longitudinal clinical and outcomes data developed by Flatiron. By making clinico-genomic data available as part of the clinical research process, researchers will have access to real-world information in designing the next generation of oncology therapeutics and clinical trials, ultimately paving the way for new and more precise therapies for cancer patients.

In addition to our collaborations across the biopharmaceutical industry and academia, we have also partnered with the National Cancer Institute, or NCI, in a collaborative data exchange program. In 2016, we agreed to contribute 18,000 genomic profiles of adult cancers to the NCI Genomics Data Commons (GDC) portal from our FoundationCore knowledgebase, which is one of the largest and most robust knowledgebases of its kind, in an effort to stimulate research for novel drug targets. Further, in 2016 and as part of President Obama's Precision Medicine Initiative, we released a dataset of pediatric genomic profiles to accelerate the discovery and development of new therapeutics to treat pediatric cancer disease. We are also participating in the Blood Profiling Atlas Consortium (BloodPAC) to aggregate, make freely available, and harmonize for further analyses, raw datasets from circulating tumor cells, circulating tumor DNA, and exosome assays as well as relevant clinical data (e.g., clinical diagnosis, treatment history and outcomes), and sample preparation and handling protocols from 13 different studies.

We believe that our molecular information platform will continue to add to the collective knowledgebase of cancer biology and clinical practice and potentially contribute to advancements in the treatment of cancer by:

- creating additional utility for our physician customers by delivering new potentially actionable information through the Foundation Portal;
- informing data-driven patient care decisions;
- providing molecular epidemiology for novel and known targets for target validation;
- identifying known drug targets in novel tumor types;
- identifying novel resistance mechanisms to targeted therapies;
- discovering new insights into the biologic basis of metastasis;
- illuminating new cancer targets, including determining the role of genomic variants of previously unknown significance;
- enabling combination therapy; and
- enhancing clinical trial design.

We expect the importance of our molecular information strategy will increase with the number of our patient cases and as we augment FoundationCore with additional clinical data. If we, in conjunction with our partners, oncologists, pathologists, biopharmaceutical partners, and academic researchers, can successfully capture and utilize this data, we believe we can continue to play an even more impactful role in transforming care for the millions of patients suffering from cancer.

Our Strategy

Our mission is to transform cancer care. Our goal is to be the global leader in precision oncology, and to build a company where we advance innovative new therapies and impact cancer care through data-driven insights. To achieve this objective, our strategy is to:

- Launch and scale FoundationOne CDx and extend market leadership of our core suite of CGP assays including FoundationOne, FoundationOneHeme, FoundationACT, FoundationFocus CDx BRCA, and future products we may develop — In the near-term we will focus on the launch and scale of FoundationOne CDx as our next flagship product.

We continue to invest in demonstrating the value of our CGP services by educating physicians and payors about the patients most likely to benefit from our products, conducting health economic studies and communicating our data through peer-reviewed journals and conference presentations. Further, we have built an experienced, oncology-focused commercial organization, and we continue to collaborate with thought leaders to validate our platform and influence utilization of our products, promote physician interaction, engage with patient advocacy and other key oncology stakeholders, and continue to pursue payment and reimbursement for our products.

Innovate around our core molecular information business and drive product innovation — We are investing resources in new molecular information services aimed at extending our position along the biopharmaceutical value chain. We are investing in technologies to allow oncologists and pathologists to collaborate and share treatment and other clinical information, and we continue to develop new and innovative decision support offerings, such as FoundationSmartTrials, to further this goal. Over time, we intend to expand our capacity to capture, aggregate, analyze, and facilitate the broader exchange of genomic and clinical data across the global oncology community. We are also investing in our immuno-oncology franchise and aim to extend our leadership position in understanding patient response to immunotherapies.

Expand globally and drive adoption of our solutions — Through our strategic collaboration with Roche we are investing in expansion of our clinical testing globally. In 2017, we expanded our global footprint and patient access to personalized healthcare by commencing operations at our laboratory in Penzberg, Germany. The Penzberg location is supporting continued growth and expansion in Europe through our commercial collaboration with Roche. We now have dedicated affiliates offering our clinical test products in close to 30 countries. We will continue to pursue globalization of our products serving both clinical and biopharmaceutical end-user markets.

Leverage our best-in-class genomic and clinico-genomic data platform — We have sequenced approximately 180,000 genomic profiles as of December 31, 2017, on a harmonized sequencing pipeline and computational platform and are sequencing thousands more each month. This platform has enabled us to make seminal discoveries, leading to publications, patents, and increasingly the opportunity for new target discovery. Further, we have leveraged our prospective sequencing volume to identify patients who might qualify for genomically-driven clinical trials, partnering with trial sponsors to accelerate trial accrual and patient access. Finally, through partnerships with clinical data providers such as Flatiron Health, we believe we have built the first and largest-of-its-kind harmonized clinico-genomic database currently available, which biopharmaceutical partners have used to enable better trial design and endpoint selection. With continued investments in our data solutions, we intend to create a data-driven development platform and discovery engine to drive oncology therapeutic programs with our partners.

Invest in sustainability and scale our business — We continue to invest in harmonizing our molecular information services to enable a more scalable platform and we are building more integrated technology solutions. We also continue to invest in expanding our QSR capacity to meet anticipated demand of our products. Over time, we expect these investments in infrastructure and improvements in operational efficiency and effectiveness will enable profitability of our core offering.

Our Industry

Despite enormous investment in research and the introduction of new treatments, cancer remains a critical area of unmet medical need. According to the 2017 American Cancer Society report, “Cancer Facts & Figures 2017,” in the United States more than 15.5 million people were living with a history of cancer, and nearly 1.7 million people were expected to be diagnosed with the disease during 2017. Hematologic malignancies, most commonly leukemias, lymphomas, myelomas, and pediatric cancers, are cancers that affect the body’s blood, lymphatic system, or bone marrow, and, taken together, account for approximately 10% of new cancer diagnoses in the United States.

The global cancer burden is growing. The World Health Organization predicts in its publication, Global Action Against Cancer, that in 2020 there will be 16 million new cancer cases and 10 million cancer deaths globally. A recent report by the American Cancer Society, “The Global Economic Cost of Cancer,” estimates that the total annual economic impact of premature death and disability from cancer worldwide is approximately \$900 billion.

According to ASCO, there were more than 12,000 practicing hematologists and/or medical oncologists treating patients with cancer in the United States in 2017. While a small portion of oncologists practice in major academic-based cancer centers, the National Cancer Institute estimates that approximately 80% of the oncologists in the United States practice in community-based settings, which is where the vast majority of patients with cancer are treated.

According to Quintiles IMS Health, there are currently approximately 630 late stage oncology drugs in the pipeline, 87% of which are targeted therapies and immunotherapies. Approximately 11% of those oncology drugs are utilizing biomarker-based segmentation. In 2016, the global costs of oncology therapies totaled approximately \$113 billion. With future growth anticipated in the range of 6-9% annually, it is estimated that oncology spending will total more than \$147 billion by 2021.

The diagnosis of cancer is complex and multidimensional. Practicing oncologists routinely order multiple tests, including currently available molecular diagnostic tests, to better understand the genomic alterations that are driving their patients’ cancer growth.

Cancer Treatment is Evolving to a Molecular-Based Paradigm

Cancer is not a single disease. The term ‘cancer’ describes a class of diseases characterized by uncontrolled cell growth. Cells can experience uncontrolled growth if there are alterations to DNA, such as damage or mutations, and, therefore, disruption to the genes and proteins regulating cell division.

Surgery is often the first line of therapy for cancer where possible, and according to the American Cancer Society, most patients with cancer will have some type of surgery. Surgery often presents the greatest chance for a cure, especially if the cancer has been detected early in its development and has not spread to other parts of the body. Many patients, however, require therapeutic intervention beyond surgery alone.

Physicians have used radiation as a cancer therapy since the early 20th century, and modern radiation techniques deliver therapy with significant precision. Nevertheless, even today, radiation's use and efficacy is limited because the high doses necessary to kill cancer cells often cause damage to healthy cells in the treatment area and fail to kill all cancer cells, particularly if the cancer has spread to other parts of the body.

Physicians began using chemotherapy in the 1940s as a drug therapy approach that acts by killing cells that divide rapidly, one of the main properties of most cancer cells. These cytotoxic therapies are often prescribed by a trial and error approach — both because certain chemotherapies have limited efficacy in some patients and the treatment effect might thus be inconsistent, and because the therapies' indiscriminate destruction of healthy cells involved in critical biological functions can cause severe toxic side effects in some patients.

More recently, oncologists are integrating a precision medicine approach by utilizing therapeutics that target cancers based on the specific genomic alterations driving their growth. We believe the oncology community is generally beginning to change clinical practice so that oncologists treat each individual's cancer according to its unique genomic alterations that impact the underlying biological pathways within the patient's cancer, rather than treating a patient's cancer based solely on its initial anatomical location in the body, such as the breast, colon, or lung. In addition, as a result of advancements in cancer biology and genomic technology that enable the identification of new cancer genes, biopharmaceutical companies are directing more research and development resources towards targeted therapies, including immunotherapies.

The rapid increase in the amount of molecular information related to cancer, as well as the increasing array of targeted oncology therapeutics, is making it more difficult for physicians to make treatment decisions. Off-label usage of traditional cytotoxic therapies is often driven by physicians struggling to treat a patient's disease after it fails to respond to initial treatment regimens. Targeted therapies are used off-label by oncologists who have expertise in genomics or access to diagnostic tools that allow them to make informed decisions about off-label use of targeted therapies.

In order to maximize the utility of diverse cancer-related molecular information to better guide the use of targeted therapies, we believe a new approach is needed. Specifically, we believe the oncology community needs comprehensive genomic information products that can assess the known and biologically relevant genomic alterations, and distill complex molecular information into a concise and actionable format.

Current Challenges of Evaluating Cancer on a Molecular Level

Today, physicians are faced with numerous challenges when making decisions on how to best utilize currently available molecular diagnostics for cancer, including:

- the inherent limitations of certain molecular diagnostic tissue tests that analyze only a single or a limited number of genomic markers from tumor tissue and that only identify a subset of the four classes of genomic alterations found in cancers;
- in the case of solid tumors, insufficient and/or poor-quality tumor biopsy tissue relative to the amount and quality needed to perform all desired or required tests; and
- difficulty integrating existing molecular diagnostic tests into clinical practice, including the decisions about which tests to order and how to effectively match the genomic information provided by tests with current targeted therapies or clinical trials.

Single-Marker or Limited Gene Tissue-based Hotspot Panel Tests Can Be Useful Tools But Often Are Not Designed to Detect Relevant Information

Most currently available molecular diagnostic tests are single-marker or limited gene "hotspot" panel tests that are designed to capture only one or a limited number of the most common, well-known gene alterations. There are four classes of genomic alterations that are clinically relevant to the treatment of cancer: base pair substitutions; copy

number alterations; short indels; and gene rearrangements and fusions. Hotspot panel tests generally are only able to identify base pair substitutions and specific gene rearrangements, do not routinely detect copy number alterations, and often lack the sensitivity to identify short indels. In addition, hotspot panel tests are typically incapable of detecting gene fusions, a type of alteration that is a common driver of hematologic malignancies, sarcomas and pediatric cancers, and certain solid tumors.

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The following table summarizes the uses and inherent limitations of the current testing methods utilized in commercially available single-marker and hotspot panel tests for cancer, including the most commonly ordered according to results of a 2008 survey of oncologists and hematologists published in the Journal of Clinical Pathology article, “Molecular testing for somatic cancer mutations: a survey of current and future testing in UK laboratories.” Although oncologists may order these tests to look for one or a limited number of specific gene alterations, we believe the inherent limitations of tests using these methods are understood by pathologists and genomicists who perform the tests and the oncologists who order them.

Name	Uses	Limitations
Polymerase chain reaction, or PCR-based tests, a technology used for amplifying DNA sequences	Enable the detection of short fragment DNA or RNA sequences.	Single-gene tests for specific and limited number of mutations. Only identify known and select base substitutions and short indels, such as BRAF V600E.
Immunohistochemical, or IHC, stains, a process used to diagnose abnormal cells	Utilize antibody proteins to identify certain antigens that are unique to various types of cancer.	Only identify the expressed presence of a known and select protein or specific protein marker, such as HER2, related to a particular genomic alteration.
FISH-based DNA probes, a mechanism for detecting DNA sequences through the use of fluorescent technology	Reveal specific genomic abnormalities, including insertion/deletions and rearrangements.	Only detect select gene rearrangements, such as EML4-ALK. Difficult to test for multiple markers.
Flow Cytometry	Detection of tumor cell DNA aneuploidy, the analysis of tumor cell proliferation and the immunophenotyping of leukemias.	Only looks at a limited number of cells, and does not detect broader range of genomic alterations.
Cytogenetics	Determination of which chromosomal translocations and fusion genes are present in malignant cells.	Cannot detect other types of genomic abnormalities.

Limited Tissue Availability and Poor Tissue Quality Restrict Testing Options

Many clinical tumor samples are provided from standard biopsies, needle biopsies, or fine needle aspirates that yield very small tissue amounts. Small amounts of tissue samples limit the number of diagnostic tests a physician can order, and ordering one or a limited number of tests that look for one or a limited number of genomic alterations necessarily increases the likelihood that a physician may fail to identify other genomic alterations and, ultimately, therapeutic options.

Clinical tumor specimens also often have low tumor purity, meaning that the relevant genomic alterations occur in low frequencies within the sample and are difficult to detect. Moreover, the vast majority of clinical samples are stored as formalin-fixed and paraffin-embedded, or FFPE, specimens. FFPE preservation can damage DNA and RNA. Low tumor purity or damage to DNA or RNA may limit the availability of hotspot panel tests to identify certain genomic alterations.

A Growing Number of Molecular Diagnostics are Often Difficult to Integrate into Clinical Practice

Physicians today face an increasingly difficult decision about which single-marker or hotspot panel tests to order. There are a growing number of tests, each specific to a different cancer type and each having limited ability to detect multiple genomic alterations. Often, in the case of solid tumors, only a small amount of tumor biopsy is available, forcing the physician to order only a subset of desired diagnostic tests, often one test at a time in a serial manner. Furthermore, tests are usually selected based on the traditional treatment paradigm of the cancer's location in the body or by simple trial and error. Integration of molecular diagnostics into clinical practice is particularly challenging with hematologic cancers where lack of tissue distinctions within the cancers often lead to misdiagnosis, lack of prognostic information and, thus, mistreatment.

Running multiple, disjointed tests also poses logistical challenges associated with routing samples to several different laboratories and the high costs associated with conducting multiple tests. Moreover, limited tissue availability may prevent relevant tests from being ordered, tests conducted may miss genomic alterations, and the results may not be delivered soon enough to be used during the typical treatment cycle for a patient. Even if a physician has enough cancer specimen to order a sufficient number of hotspot panel tests and single gene molecular tests to identify relevant genomic alterations, and receives the results of all of these tests in a timely fashion, the physician would commonly receive a series of uncoordinated individual reports from different laboratories that are difficult for non-specialized pathologists or oncologists to interpret and synthesize. Compounding these challenges, especially in the community oncology setting, is how to effectively match the genomic information provided by tests with current targeted therapies

or clinical trials for a particular patient. As a result of one, or a combination of these current limitations, physicians may fail to identify or to prescribe a potentially appropriate targeted oncology therapy or to direct a patient to a potentially appropriate clinical trial.

The Opportunity for a Single, Comprehensive Molecular Information Solution

In order to harness the potential of understanding the genomic drivers of a patient's cancer and new therapies targeted at specific genomic alterations, we believe the oncology community needs a better approach: a single molecular information platform that can assess a solid tumor or hematologic malignancy for the presence of biologically relevant genomic alterations and biomarkers from either a tissue specimen or a liquid biopsy. This solution would also provide assistance to physicians in matching the genomic alterations identified in their patients' cancers with relevant available therapeutic alternatives and clinical trials.

Our molecular information platform, which includes proprietary technology, methods, and computational algorithms, is the product of years of research and development and significant capital investment. Through this platform we deliver comprehensive genomic profiling to support physicians in the improvement of clinical patient care and to support biopharmaceutical companies in the development of novel cancer therapeutics. The first molecular information products enabled by our platform are FoundationOne, which is optimized for use with solid tumors, FoundationOneHeme, which is optimized for hematologic cancers, including leukemia, lymphoma, myeloma, and sarcomas, and FoundationACT, which is optimized for use with liquid (blood) samples when solid tumor tissue specimens are insufficient. FoundationOne, our initial clinical product launched in June 2012, is a comprehensive genomic profile that identifies the individual molecular alterations present in a patient's cancer tumor and matches them with relevant targeted therapies and clinical trials. FoundationOneHeme, our second commercially available product, which we developed in collaboration with Memorial Sloan-Kettering Cancer Center, or MSKCC, and launched in December 2013, is a comprehensive genomic profile that identifies the individual molecular alterations present in a patient's blood-based cancer and matches them with relevant targeted therapies and clinical trials. FoundationACT, our third molecular information product, enables comprehensive genomic profiling from a blood sample when a tissue biopsy cannot be obtained. FoundationACT was launched to ordering physicians in May 2016.

In December 2016, we launched our first FDA-approved product, FoundationFocus CDx BRCA, for use as a companion diagnostic to aid in identifying women with ovarian cancer for whom treatment with Rubraca™ is being considered. In November 2017, we announced FDA approval for FoundationOne CDx for solid tumors. FoundationOne CDx currently assesses 324 relevant cancer genes for all classes of genomic alterations, and reports TMB and MSI, enabling patient access to FDA-approved targeted therapies and immunotherapies and clinical trials.

Our Suite of Molecular Information Products Integrates Complex Insights into Routine Clinical Care

We believe our suite of comprehensive genomic profiling products is the only widely available suite of molecular information products that can comprehensively assess cancer tissue simultaneously for the four classes of genomic alterations found in cancer with published validation studies demonstrating sufficient sensitivity and specificity for routine medical practice. Moreover, these products deliver this complex molecular information in a contextualized report that matches detected molecular alterations with potentially relevant treatment options and clinical trials. We perform our clinical tests in our laboratories located in Cambridge, Massachusetts and Research Triangle Park, North Carolina, each of which is certified under the Clinical Laboratory Improvement Amendments of 1988, or CLIA, and accredited by the College of American Pathologists, or CAP. Our Cambridge testing location holds individual state licensure as required and issued by New York, Florida, Maryland, Massachusetts, Pennsylvania, Rhode Island, and California, and is therefore permitted to perform testing on specimens originating in all states. Our North Carolina testing location holds individual state licensure as required by New York, Florida, Maryland, Pennsylvania, Rhode

Island and California and is therefore permitted to perform testing on specimens originating in all states. We also perform FoundationOne testing for most European countries in our lab in Penzberg, Germany.

Our FDA-approved assays, FoundationOne CDx and FoundationFocus CDx BRCA, are performed in a QSR environment. Optimization and automation enable workflows to deliver medical reports to ordering physicians typically within two weeks from the time the specimen is received.

A Validated and Highly Precise Process of Testing for Tissue and Liquid Biopsies

Our proprietary methods and workflow make our suite of clinical molecular products suitable for clinical use at a commercial scale. Standard biopsies and needle biopsies obtained in a clinical setting often yield very small tissue amounts that have a low concentration of tumor cells and are preserved in a FFPE format. We have developed proprietary techniques for optimizing pre-sequencing sample preparation and have built post-sequencing computational algorithms that enable our products to be sufficiently sensitive to perform comprehensive genomic profiling on routine clinical tumor samples. We have optimized our processes to maximize throughput, efficiency, and quality.

FoundationOne has undergone extensive analytic validation that demonstrates test performance using both reference specimens and hundreds of actual FFPE clinical cancer specimens having results derived from prior standard diagnostic tests. We performed validation studies in which FoundationOne testing was conducted on previously characterized cell lines known to contain various base substitutions and cancer specimens known to contain various indels and copy number alterations to evaluate whether FoundationOne was capable of detecting these pre-defined genomic alterations. FoundationOne was found to be highly sensitive in identifying these genomic alterations even where the percentage of cells in test samples containing the alterations (versus normal cells not containing the alterations) was very low. Specifically, FoundationOne was able to detect 99% of base substitutions contained in test samples in which less than 10% of the cells contained the base substitutions, 97% of indels in samples in which 10% to 20% of the cells contained the indels, and 99% of copy number alterations of at least 8-fold in which 30% of the cells contained the alterations. In aggregate, FoundationOne detected greater than 99% of the genomic alterations contained in the samples tested in the validation study. We believe these results demonstrate the importance of our proprietary methods, algorithms, and advanced bioinformatics, and are helping to set the industry standards for validation of comprehensive genomic profiling. The analytic validation results of our studies on FoundationOne were published in Nature Biotechnology in October 2013.

FoundationOneHeme has also undergone extensive analytic validation for both the DNA and RNA sequencing components of the test. Test performance of the DNA component matched the high accuracy achieved by FoundationOne for all classes of genomic alterations. Test performance of the RNA component demonstrated a sensitivity to detect greater than 99% of known gene fusions at 20% tumor content and 97% of known gene fusions at 10% tumor content. The results of our analytic validation studies on FoundationOneHeme were presented at the 2013 ASH annual meeting and published in March 2016 in the journal, *Blood*.

FoundationACT, an assay which enables genomic profiling of ctDNA, has undergone extensive analytic validation demonstrating that the assay exceeds requirements for clinical use. Circulating cell-free DNA is highly fragmented, present at very low concentrations in the blood, and contains only a small fraction of ctDNA. We believe many cancer patients may not shed enough detectable tumor DNA into their bloodstream and may thus test negative using ctDNA assays. Therefore, the isolation and identification of ctDNA is extremely challenging. Assay sensitivity and specificity is directly dependent on cell-free DNA extraction and circulating tumor evaluation, high efficiency sample preparation, and capture efficiency combined with custom low frequency variant calling algorithms. We have optimized FoundationACT for sensitivity and specificity of base substitutions, indels, genomic rearrangements, and copy number amplifications. The workflow for FoundationACT is highly reproducible, achieves the required turnaround time, and is compatible with whole blood, plasma and cell-free DNA inputs.

At the 2016 annual meeting of the Advances In Genome Biology and Technology (AGBT), we reported on aspects of our analytic validation study in a presentation entitled, "Assessment of the Relative Clinical Utility of ctDNA and Tissue Biopsies for the Detection of Actionable Genomic Alterations in Routine Clinical Oncology Specimens." Our analytic validation study demonstrated that FoundationACT results were 100% concordant with FoundationOne and digital droplet PCR results across 87 base substitutions (43 at <5% mutant allele frequency), 3 indels, and 5 genomic alterations. The precision and sensitivity observed with FoundationACT passed target performance specifications. We believe, based on our analysis of the literature, that we have one of the most accurate, highly sensitive and specific, analytically validated assays to measure ctDNA from blood. We have submitted this analytic validation work for publication.

To support our commercial efforts for FoundationACT and to give providers confidence in using a liquid biopsy assay when tissue is not available, we launched a large, multi-center study to assess the potential utility of this test across various cancers and stages of the disease as well as to refine indications for use. Enrollment in this trial has completed. We believe this study will provide critical information by comparing the genomic alterations seen in tissue and blood in a given patient which will in turn inform clinical applications of this approach. We expect to publish results from this study.

In December 2016, the FDA approved FoundationFocus CDx BRCA for use as a companion diagnostic to aid in identifying women with ovarian cancer for whom treatment with Rubraca™ (rucaparib) is being considered. FoundationFocus CDx BRCA is an FDA-approved tissue-based, genomic assay that uniquely detects tumor BRCA1 and BRCA2 mutations (may include both germline (inherited) and somatic (acquired)) in ovarian cancer.

We closely collaborated with Clovis on a regulatory strategy to develop FoundationFocus CDx BRCA in parallel with the development of Rubraca™ (rucaparib). Tissue samples taken from individuals with ovarian cancer who enrolled in rucaparib clinical trials were analyzed by us utilizing CGP to identify biomarkers associated with a response to therapy. These molecular signatures of response informed the development of FoundationFocus CDx BRCA, which was utilized in Clovis' pivotal trial, ARIEL2, to identify patients and accelerate recruitment into the study. The companies filed concurrent PMA and new drug application submissions with the FDA in early 2017.

With this FDA approval, FoundationFocus CDx BRCA is the first validated, tissue-based assay developed from the QSR-compliant version of our CGP assay, providing uniform analysis of all BRCA1/2 coding exons. The PMA submitted to the FDA for review included clinical and analytical studies. The clinical benefit of the FoundationFocus CDx BRCA assay as a companion diagnostic test was demonstrated in a retrospective analysis of efficacy and safety

data from two Phase 2 open-label studies (Study 1 and Study 2) that evaluated rucaparib for treatment of patients with advanced ovarian cancer. The analytic validation was designed to demonstrate that the FoundationFocus CDx BRCA laboratory processes are robust, precise, and sensitive, and are not adversely affected by interfering substances or reagent lot changes. Analytical studies were performed to establish performance characteristics including, but not limited to, accuracy, analytic specificity, carryover/cross-contamination, precision, and limit of detection.

In November 2017, the FDA approved FoundationOne CDx, the first broad CGP assay including multiple companion diagnostics for solid tumors. We presented analytic validation data for FoundationOne CDx at the 2017 International Association for the Study of Lung Cancer (IASLC) 18th World Conference on Lung Cancer (WCLC). Data demonstrated high concordance with multiple companion diagnostics and other single marker assays currently used to match targeted therapies to people with certain types of NSCLC, melanoma, CRC, ovarian cancer, or breast cancer. Results showed that FoundationOne CDx detected alterations in the EGFR, ALK, BRAF, ERBB2, KRAS and BRCA1/2 genes and demonstrated concordance with FDA-approved companion diagnostics currently used to match targeted therapies to patients with certain types of NSCLC, melanoma, colorectal cancer, ovarian cancer or breast cancer. In each of the separate studies, concordance was measured as positive percent agreement (PPA) with other FDA-approved tests.

We are investing in technologies to allow oncologists and pathologists to collaborate and share treatment and other clinical information, and we continue to develop new and innovative decision support offerings, such as FoundationSmartTrials, to further this

goal. Over time, we intend to expand our capacity to capture, aggregate, analyze and facilitate the broader exchange of genomic and clinical data across the global oncology community.

Reports Physicians Can Readily Understand and Use to Guide Patient Care

We designed our test reports, in collaboration with leading oncologists, to deliver clinically relevant information in a manner that seamlessly integrates into their practices. We aim to present the results from our tests in a medically relevant and practice-friendly manner that empowers physicians to make informed treatment decisions. During a period of active treatment, patients typically visit their physician every three to four weeks. We report the clinically relevant genomic alterations to a physician for use typically within two weeks from the time the specimen is received.

The FoundationOne CDx report contains two sections: the first section lists therapies corresponding to FDA-approved companion diagnostics across five tumor types as well as other advanced immuno-oncology biomarkers including tumor mutational burden (TMB) and microsatellite instability (MSI). The second section, our Professional Services section, summarizes key findings and lists the analyzed cancer's relevant genomic alterations and matches them to either targeted therapies or open clinical trials for therapies targeting these alterations. The report also identifies noteworthy absences of genomic alterations and indicators of resistance to targeted therapy typically associated with anatomical tumors of the same type. In addition, the report includes summaries of, and references to, supporting data from peer-reviewed publications and clinical trial information.

The FoundationOne, FoundationOneHeme, and FoundationACT reports contain similar information and are presented in a similar easy-to-follow format, but do not have a first page that corresponds to FDA-approved companion diagnostic claims. Information on the report from all tests can also be accessed by ordering physicians through Foundation Medicine's online portal.

An Example of Page One Findings from a FoundationOne CDx Report

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Our Platform for Biopharmaceutical Research and Development

We deploy our highly-validated clinical assay platform to analyze tissue samples provided by biopharmaceutical partners from their clinical trials, and we provide our partners access to our FoundationCore knowledgebase to enable novel insights into the

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molecular basis of the cancers they seek to treat. We use our proprietary genomic testing, computational biology, and information technology capabilities to provide our biopharmaceutical partners with comprehensive genomic profiling and information relevant to precision medicine strategies for clinical studies and other drug development activities. Our platform capabilities enable our biopharmaceutical partners to:

- accelerate clinical development timelines and improve the likelihood of patient response by prospectively identifying patients with genomic alterations qualifying them for enrollment in clinical trials of targeted cancer therapeutics;
- realize significant cost-effectiveness and risk-reduction by utilizing a single genomic platform for research, trial enrollment, and development of the companion diagnostics that may be necessary to bring a targeted cancer therapeutic to market;
- inform future development opportunities for experimental and marketed therapies by retrospectively analyzing clinical trial patients to stratify them as responders or non-responders based on the presence or absence of certain genomic alterations;
- create opportunities for drug combination studies or new target discovery by identifying mechanisms of primary and acquired resistance; and
- inform improvements to clinical trial design by contributing to the understanding of why some clinical studies did not meet their primary endpoints.

We currently have ongoing relationships with more than 30 biopharmaceutical partners, many of which are leaders in developing targeted cancer therapies, and these relationships have expanded over time. Our publicly announced biopharmaceutical customers include Agios, ARIAD Pharmaceuticals, Inc., Array BioPharma Inc., AstraZeneca, BMS, Clovis, Loxo, Johnson & Johnson, Novartis, Pfizer and Roche, among others.

Since the onset of our partnership, we have worked with multiple biopharmaceutical partners to report solid tumor sequencing results for hundreds of samples as part of retrospective or prospective clinical trial testing. We expect our biopharmaceutical partner relationships will continue to expand and will provide more opportunities to sell our molecular information products for companion diagnostic development, research and development projects, new target discovery and validation and clinical trials participation. For example, in February 2018, we amended our Ex-U.S. Commercialization Agreement with Roche to include FoundationOne CDx, the first FDA approved broad CGP assay for all solid tumors and with multiple companion diagnostics.

In addition, we believe our strategic collaboration with Roche represents a significant opportunity to further standardize clinical trial testing across many cancer therapeutics development programs, develop additional companion diagnostic products, and grant access to our molecular information knowledgebase, FoundationCore.

In addition to generating near and long-term revenue, our relationships with key players in the biopharmaceutical industry provide us with important strategic opportunities, including enabling us to identify new genes and biomarkers under investigation that can be incorporated early into our molecular information platform and our products, and more broadly allowing us to actively participate in the development of the newest oncology therapeutics and inform the evolving clinical treatment paradigm. Our partnerships with leading drug development companies that are focused on cancer therapeutics further our connections with the broader oncology community, including thought leaders who are important to the adoption of our commercial products.

Market Opportunities for Our Fully Integrated Suite of Clinical Molecular Information Services

We believe our suite of molecular information services will continue to serve as a valuable tool for a greater number of physicians. Aggregating and delivering complex molecular, medical, and scientific information in a single report that can be understood and acted upon has become increasingly important, especially as a majority of our test volume is driven by physicians in community-based practices rather than academic medical centers. Physicians in the community setting often see patients across a wide spectrum of cancer types, which can be particularly challenging as new data emerges specific to each cancer type. In 2013, approximately 30% of our test volume was driven by physicians in community practices, whereas in 2017, approximately 70% of our test orders were received from

community-based physicians. Approximately 80% of patients with cancer in the United States today are treated in community practice settings.

As we deploy our commercialization strategy, we continue to work with our growing network of oncology clinicians to identify the subsets of patients with metastatic cancer for whom FoundationOne, FoundationOneHeme, FoundationACT, and FoundationFocus CDx BRCA are most likely to positively inform treatment decisions. We intend to commercialize FoundationOne CDx in early 2018. We are focused on driving awareness of the potential utility of our tests in all solid tumor types and appropriate hematologic malignancies, including but not necessarily limited to these subsets of patients:

- patients who may benefit from targeted therapy or immunotherapy in tumor types where comprehensive molecular profiling is specified in practice guidelines, such as NSCLC, CRC, ovarian cancer, and prostate cancers;
- patients who have NSCLC, CRC, melanoma, breast, or ovarian cancers for which there are FDA-approved therapies;
- patients who have predictive biomarkers of response to immunotherapy like MSI and TMB:

- patients who test negative under traditional single marker or hotspot panel tests for their tumor type;
- patients from whom a tissue biopsy cannot be obtained or who have insufficient available tissue to perform further tissue-based testing;
- patients for whom standard treatments have been tried and failed, such as patients whose breast cancer continues to progress despite multiple chemotherapy regimens or patients who have developed resistance to first line tyrosine kinase inhibitor therapy;
- patients with rare or uncommon tumors, such as certain sarcomas or non-colon/small-bowel gastrointestinal tumors, for whom no standard treatment approach exists;
- patients who have aggressive disease and failed conventional chemotherapy but who maintain adequate functional status, such as some individuals with urothelial cancers or cholangiocarcinoma;
- patients with ovarian cancer for whom treatment with RubracaTM (rucaparib), a therapeutic offered by Clovis, is being considered; and
 - patients considering participating in clinical trials.

While these groups are not mutually exclusive, we estimate that annually in the United States there are approximately 1.1 million patients who fall into the above patient categories and who would benefit from FoundationOne CDx, FoundationOne, FoundationACT, or FoundationFocus CDx BRCA testing, and another approximately 100,000 patients who would benefit from FoundationOneHeme. These estimates are based upon a combination of feedback from our network of oncology thought leaders, data published by the National Cancer Institute in the Cancer Statistics Review, and focused market research that we commissioned.

As the number of available targeted therapies and immunotherapies expands, as professional guidelines are updated to integrate personalized cancer care, and as physicians gain further experience using comprehensive genomic profiling in their routine treatment decisions, we believe that the potential addressable market for comprehensive genomic profiling will expand over the next five years to include most patients who have metastatic disease, not only those patients limited to the categories noted above. We also believe FDA approval of FoundationOne CDx, accompanied by a national coverage policy from CMS, will expand testing to patients who are earlier in the treatment cycle particularly for those patients with NSCLC, CRC, melanoma, breast, and ovarian cancers; those who suffer from a broader set of disease conditions; those patients diagnosed with rare and uncommon cancers regardless of stage who may be eligible for Medicare coverage with clinical evidence development; and, to those patients with other solid tumors as additional FDA-approved companion diagnostics claims are added to the FoundationOne CDx platform over time. We also believe there will be an increasing opportunity with patients for whom tissue is not available and who would benefit from a liquid biopsy assay.

Although we expect existing and future diagnostic testing providers to also target these patient populations, we believe our tests are currently the only commercially available suite of comprehensive genomic profiles that comprehensively assess cancer tissue simultaneously for four classes of genomic alterations across all cancer-related genes with published validation demonstrating the required sensitivity and specificity required for routine medical practice. In addition, we believe that our Ex-U.S. Commercialization Agreement with Roche provides us with access to global markets and an estimated additional two million patients worldwide.

Commercialization Strategy

We continue to create awareness and drive adoption of our comprehensive molecular information platforms through our commercialization strategy to:

- further build our experienced, fully-integrated, oncology-focused commercial organization in the United States;
- expand our footprint globally through our ex-U.S. commercial collaboration with Roche;
- collaborate with oncology thought leaders, leading academic institutions, biopharmaceutical partners and community-based oncology networks/practices on FoundationOne CDx, FoundationOne, FoundationOneHeme, FoundationACT, and FoundationFocus CDx BRCA, clinical cases, clinical research, publications, and product

development;

- demonstrate improved clinical outcomes and health economic data to support broad reimbursement from third-party commercial payors and government payors for comprehensive genomic profiling;

drive broader adoption and increased ordering frequency per physician by offering differentiated programs, ongoing product innovation, and new technology tools and applications, like FoundationSmartTrials, that provide easier access to clinically relevant information;

support an active medical affairs team to build and support new and ongoing client relationships, focusing on enhancing the actionability of the molecular information generated through our testing platforms;

publish important medical and scientific data in top-tier peer-reviewed journals and present at major industry conferences in support of demonstrating the actionability and patient care enhancements of the molecular information provided through our testing platforms; and

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work with patient advocacy groups, medical societies, and professional guideline organizations to create greater awareness of our products and the importance of incorporating molecular diagnostics into cancer treatment. Through these efforts, we are creating greater awareness and utilization of the unique capabilities of our suite of molecular information platforms throughout the oncology community—from patients suffering from cancer, to the physicians treating them, to the third-party payors for these treatments, and to biopharmaceutical companies developing new treatments—all with the goal of facilitating better-informed treatment decisions for the greatest number of patients with cancer. We believe that by driving physician and patient demand for our suite of clinical molecular information products and by being part of improving patient outcomes, we will continue to increase utilization of our molecular information platforms and obtain favorable reimbursement decisions by third-party payors.

Building an Experienced, Oncology-Focused Commercial Organization

United States

Our commercial organization in the United States works with oncologists and pathologists in hospitals, clinics, and cancer centers in both the community and academic settings. We have built a fully integrated commercial organization including sales, sales management and support, client services, marketing, and reimbursement.

Our current sales efforts focus on building relationships with thought leaders at leading academic medical centers and research institutions, pathologists and oncologists in community practice settings, and leading physician networks to demonstrate the clinical usefulness of our molecular information solutions. Since launching our first comprehensive genomic profile assay in 2012, over 3,000 practices and more than 9,000 health care providers have ordered Foundation Medicine services for their patients.

As we continue to grow and optimize our commercial organization through streamlined ordering, data collection, and clinical trial enrollment, we are increasing our support of community hospitals and community-based cancer centers that we believe require greater efficiencies and a reliable and collaborative partner for molecular information solutions. Our presence in the community-based cancer centers continues to grow, and this represents an important market segment given that approximately 80% of all cancer patients in the United States are treated in community-based settings.

In addition, we are continuing our development of important relationships with pathologists so that we can better serve the pathology community by providing value-added molecular information products, technology solutions, and integration services that support a pathologist's important position as part of the patient management team. These efforts also include the expansion of our virtual tumor board services that bring together the entire clinical care team at both academic partners as well as community-based practices, to support the education and patient management of the most challenging of patient cases.

Further, we believe that our U.S. Education Collaboration Agreement (as described in detail in our other public filings and below in the section entitled "Our Strategic Collaboration with Roche") with Genentech, Inc., a wholly owned subsidiary of Roche, or Genentech, is driving awareness of comprehensive genomic profiling and the most appropriate uses for liquid biopsy platforms, and thereby supplementing the education provided today by our field sales team.

International

Prior to the closing of our strategic collaboration with Roche in April 2015, our international sales strategy had been focused on partnering with leading distributors and building our direct selling efforts. We believe that our Ex-U.S. Commercialization Agreement with Roche accelerates our access to these and other global markets.

Under the terms of our Ex-U.S. Commercialization Agreement with Roche, Roche has the right to commercialize FoundationOne, FoundationOneHeme, FoundationACT, and, as of February 2018, FoundationOne CDx outside of the

United States. Roche has significant experience, expertise, and local market knowledge across many regions around the world, and we believe they are uniquely positioned to understand local market dynamics, payor systems, and regulatory systems. By the end of 2017, Roche had commercially launched our products in close to 30 countries. We expect Roche will launch our products in additional countries in 2018. To support Roche's launch, and as part of our Ex-U.S. Commercialization Agreement, we now operate a lab in Penzberg, Germany.

Collaborating with Thought Leaders to Shape the New Cancer Treatment Paradigm

We believe physicians look to peers and key thought leaders in the medical community when evaluating a new technology. Oncology thought leaders have historically been early adopters of new technologies because they have greater access to new therapies, clinical trials, and diagnostic tools as compared to many community oncologists. Since our inception, our founders, medical affairs group, senior management, and commercial team have leveraged existing and built new relationships with these early adopters to provide our customers solutions to meet their needs.

KOLs and leading cancer researchers have embraced our comprehensive molecular information approach, including oncologists at premier cancer institutions such as MSKCC, Vanderbilt-Ingram Cancer Center, and the Taussig Cancer Institute at the Cleveland Clinic. In addition to using FoundationOne and FoundationOneHeme for clinical cases, these individuals and institutions collaborate

with us on clinical studies, peer-reviewed publications, virtual tumor boards, and medical and scientific conference presentations. We believe our relationships with KOLs help validate our platform, drive adoption of our clinical products in community oncology settings and international markets, establish our leadership position in the field of molecular information about cancer, and thereby further our ultimate goal — to facilitate better-informed treatment decisions for the greatest number of patients with cancer.

We believe that a significant barrier to the achievement of precision medicine in oncology is that patient information is trapped in silos across the healthcare system, and we believe we can help to facilitate cross-organizational sharing of clinico-genomic data in oncology as a means to drive better insights and improved clinical outcomes. For example, we launched PMEC in September 2015. PMEC brings together oncology thought leaders from leading U.S. academic medical centers, hospital systems, and community oncology networks, who share a desire to improve clinical outcomes in oncology treatment through molecular profiling. The consortium intends to improve the practice of precision medicine through a collaborative exchange of molecular information and clinical outcomes data, and through a broader integration of comprehensive genomic profiling in cancer treatment. Additionally, a key focus of PMEC is cancer research focused on genomics within these facilities.

We believe the creation of PMEC and the associated planned establishment of research opportunities, clinical trials, tracking outcomes, and sharing of clinico-genomic information will help increase utilization of molecular information products, demonstrate our commitment to research and development and educational initiatives, and further strengthen our position as a thought leader in cancer.

Our relationships with KOLs in oncology have been instrumental in driving the adoption of FoundationOne and FoundationOneHeme. We believe awareness of FoundationOne within the community oncology setting was largely created through our publications and presentations with KOLs and the resulting peer-to-peer interaction they generated. We will continue to nurture these relationships with thought leaders as we drive adoption of FoundationOne, FoundationOneHeme, FoundationACT and our companion diagnostic assays, and as we develop new, innovative products that enable providers to deliver the best cancer care.

Supporting Adoption through Publications and Clinical Trials

We believe the successful completion of multiple clinical trials, our publication of scientific and medical results in peer-reviewed journals, and presentations at leading conferences are critical to the broad adoption of products enabled by our proprietary platform. Our publications and presentations to date have helped communicate our capabilities and the clinical results that early adopters of our platform have achieved. We will continue to use these channels in our efforts to drive commercial adoption of our products and obtain favorable reimbursement decisions. In 2017, we, together with our collaborators, published 95 peer-reviewed manuscripts in top medical and scientific journals and presented 141 podium talks and posters at scientific and medical meetings.

Since the beginning of 2011, we have had:

- over 290 peer-reviewed articles published or accepted for publication, including by Nature Medicine, Nature Biotechnology, Clinical Cancer Research, Cancer Discovery, Cancer Research, Clinical Breast Cancer, Hematology & Oncology, American Journal of Surgical Pathology, Journal of Clinical Oncology, Journal of Thoracic Oncology, Blood, and Genome Medicine;
- over 433 poster presentations based on clinical and research data that have been accepted and presented at major scientific conferences on themes that include the identification of multiple novel actionable drug targets, known drug targets in novel tumor types, novel resistance mechanisms to targeted therapies, new insights into models of metastasis, and novel hypotheses on the molecular basis of response or resistance to certain targeted therapies; and
- more than 138 speaking presentations at scientific meetings such as ASCO, American Association of Cancer Research, San Antonio Breast Cancer Symposium, US and Canadian Association of Pathology, or USCAP, Advances in Genome Biology and Technology, and ASH, among others.

We have a number of clinical trials sponsored by us and clinical trials sponsored by individual physicians, or investigator-initiated clinical trials, underway or completed, such as:

• **Circulating Tumor DNA clinical study.** This multicenter study is a clinical utility study designed to identify the clinical settings for which FoundationACT may be indicated and to compare the genomic alterations between primary/metastatic surgical resections/biopsies and ctDNA across multiple solid tumor types. This study completed enrollment in 2017.

• **BeatAML Master Trial.** This is a trial being led by The Leukemia & Lymphoma Society. The goal of the study is to test a number of drugs or drug combinations in development to speed approval and increase effectiveness of treatments for certain patients diagnosed with acute myeloid leukemia. This will be accomplished by performing CGP with FoundationOneHeme for each patient before treatment and assigning a specific drug when a match is available to that untreated patient based on the results of the screening.

• **Sarah Cannon Collaboration.** This is a collaboration between FMI and Sarah Cannon Research Institute (SCRI) focused on advancing personalized medicine utilizing molecular information for patients across SCRI cancer programs in the United States. Together with SCRI, we are gathering results across several of our CGP assays to personalize

treatment options for patients in an effort to support improved outcomes. Researchers can use our CGP assays to identify eligible patients for participation in select SCRI clinical studies.

• **Lung Cancer Master Protocol.** Lung-MAP is a multi-drug, multi-arm, biomarker-driven clinical trial for patients with advanced squamous cell lung cancer. The trial utilizes our CGP platform to match patients to one of several different investigational treatment arms that are designed to target the genomic alterations found to be driving the growth of their cancer. In 2017, our participation in the Lung-MAP clinical trial was expanded to include TMB reporting with FoundationOne results, as well as testing with our FoundationACT liquid biopsy assay. This ongoing innovative approach to clinical testing should both improve access to promising targeted therapies and immunotherapy drugs for patients who have tissue and/or liquid biopsies performed and facilitate recruitment in this important clinical trial.

• **NCI-MATCH (Molecular Analysis for Therapy Choice).** This study is a collaboration with the National Cancer Institute (NCI) and ECOG-ACRIN Cancer Research Group (ECOG-ACRIN). NCI-MATCH is designed to evaluate the benefit of genomically-guided treatments targeting specific alterations within a person's tumor, regardless of cancer type. FoundationOne or FoundationOneHeme are being used by physicians at the approximately 1,100 clinical sites participating in NCI-MATCH to reveal genomic findings that may make a patient eligible for one of several NCI-MATCH treatment arms.

• **i-PREDICT (Investigation of Profile-Related Evidence Determining Individualized Cancer Therapy).** This trial is being conducted at the University of San Diego and Avera Cancer Institute. Foundation Medicine is the sole provider of CGP and IHC testing to inform patient eligibility for trial participation.

• **Beating Lung Cancer in Ohio.** This study, led by Ohio State University in collaboration with the Addario Lung Cancer Medical Institute (ALCMI), integrates FoundationOne and FoundationACT assays to help guide patients to therapy based on the genomics of a patient's tumor from a tissue or liquid biopsy.

Additionally, our molecular information services are increasingly being integrated into investigator initiated trials (IITs) in countries outside of the United States to support our collaboration with Roche. Our CGP products have also been integrated into a number of ongoing investigator sponsored pediatric cancer studies investigating a range of outcomes including the percentage of pediatric cancer patients for whom NGS profiling changes therapy prescribed by physician, phase 1 dosing studies, and the exploration of clonal heterogeneity, among others.

Engaging With Patient Advocacy Groups and Other Important Stakeholders to Drive Awareness

We have established relationships with many patient advocacy groups to drive awareness of our products and to educate the advocacy community and other key stakeholders, including major medical societies and networks, about the shifting oncology paradigm towards precision medicine.

Patient advocates are important stakeholders in the cancer community because they have influence within the patient community and with health care providers, KOLs, and policy makers. We established our advocacy relations program with the following goals:

- develop awareness around genomic testing;
- position us as a patient-centered company within the patient community by creating goodwill and becoming a trustworthy corporate partner;
- effectively shape the dialogue around cancer genomics with key constituents; and
- work with advocates to help increase genomics conversation and drive the use of molecular information testing.

We have successfully established key relationships to help educate advocates about us and our capabilities in oncology. Some of the organizations we engage with include Friends of Cancer Research, Patient Advocate Foundation, Clarity Foundation, American Cancer Society Cancer Action Network, Lung Cancer Foundation of America, Bonnie J. Addario Lung Cancer Foundation, Lungevity Foundation, FightCRC, and many others. We continue to engage representatives from several patient advocacy organizations, establishing our commitment to understanding patients' needs and positioning us as a neutral facilitator of oncology stakeholders, with important insights and relationships across industry, advocacy, and regulatory bodies. Through these activities, we have developed the basis for a meaningful advocacy relations program, with opportunities to more strategically engage advocates moving forward.

Our relationships with other influential organizations that shape the delivery of care are also critical as we work to develop and educate the market. We currently work with and aim to work with many organizations, including the National Comprehensive Cancer Network, ASCO, USCAP, and others regarding the role of NGS and broader molecular profiling in the evaluation of patients and their tumors. We are working with these organizations both on potential educational initiatives as well as the evolution of guidelines, which today are very much tumor-type specific, to recognize the growing importance of the molecular characterization of the collection of diseases known as cancer.

Driving Adoption by Enabling Broader Access to Care

Adoption of comprehensive genomic profiling by academic and community-based oncologists supports the clinical utility required to improve health outcomes and quality of life for select groups of patients that can benefit from targeted therapy treatment. However, it can sometimes be difficult for patients and their physicians to gain access to these potentially life-saving treatments. We provide patient-centric support services that we call FoundationACCESS to help break down barriers to greater utilization of comprehensive genomic profiling and clinical trial access. Examples of these services include our Financial Assistance program, our Smart-Trials Precision Enrollment program, and our on-call Medical Affairs service.

Payment and Reimbursement for Our Molecular Information Products

The principal groups that currently pay us, or that we expect to pay us in the future, for our molecular information and pharma research and development services include:

- our biopharmaceutical customers, with whom we have individual agreements;
- commercial third-party payors;
- government payors, including Medicare and state Medicaid plans, to whom we have been submitting claims;
- certain hospitals, cancer centers, and other institutions that pay us directly at negotiated rates for tests ordered by their physicians; and
- patients who make self-payments, or co-payment, co-insurance or deductible payments and other amounts that we have been unable to collect from their third-party payors.

We believe that our services present unique solutions for commercial third-party payors and government payors who are faced with an increasingly complex and dynamic cancer diagnostic and treatment environment. These complexities include a growing number of single-marker and hotspot panel tests, the increasing number and cost burden of targeted oncology therapies, and an underlying shift in physicians' treatment of cancer that is based on molecular pathways rather than tumor location. In addition, this shifting treatment paradigm comes at a time when commercial third-party payors and government payors are increasingly making significant efforts to contain healthcare costs. We believe the use of our services aligns with payors' goals to improve the safety, efficacy, and efficiency of cancer diagnosis and treatment.

The current list price for our FoundationOne and FoundationACT tests is \$5,800, the current list price for the FoundationOneHeme test is \$7,200, and the current list price for our FoundationFocus CDx BRCA is \$2,900. The actual payment received for each of the tests is not certain, may come from various sources, and is typically less than the list price.

Adequate reimbursement is an important factor in achieving broad clinical adoption of our molecular information services. At the same time, we believe broad clinical adoption will help drive favorable reimbursement decisions. To achieve adequate reimbursement and broad coverage with commercial third-party payors and government payors, including Medicare and Medicaid, we are focused on demonstrating the economic and clinical value of our services to payors by:

Setting a High Bar for Validation and Performance. Our tests provide clinically relevant results that are highly reproducible and sensitive, and we believe that many of our relevant findings would not be detected by many other commercial tests on the market today. Patients may benefit from our detection of otherwise unknown genomic alterations that can lead to their physicians choosing alternate therapies. We have presented data on the reproducibility, sensitivity, specificity, and comprehensive scope of our services at numerous conferences and in peer-reviewed journals. In October 2013, the analytic validation results of our studies on FoundationOne were published in *Nature Biotechnology*. In 2014, we received approval from the New York State Department of Health for FoundationOne and FoundationOneHeme, which represents a high standard for quality in large-scale, multi-gene

sequencing-based testing in cancer. In 2016, Palmetto published validation guidelines for liquid biopsy tests and we believe FoundationACT meets these validation criteria. Also in 2016, we obtained FDA approval for FoundationFocus CDx BRCA for use as a companion diagnostic to aid in identifying women with ovarian cancer for whom treatment with Rubraca™ (rucaparib) is being considered. In 2017, the FDA-approved FoundationOne CDx as a comprehensive companion diagnostic to identify patients who may benefit from treatment with specific FDA-approved targeted therapies, and as a comprehensive genomic profiling, or CGP, test that includes genomic biomarkers to help inform the use of other targeted oncology therapies, including immunotherapies. Concurrent with FDA approval, CMS issued a preliminary NCD that proposes nationwide Medicare coverage for FoundationOne CDx and certain other NGS tests for eligible Medicare beneficiaries with advanced cancer (i.e., recurrent, metastatic, or advanced stage IV cancer), who have not been previously tested using the same NGS technology and continue to seek further cancer therapy. Specifically, the preliminary NCD proposes coverage for FoundationOne CDx for its FDA-approved companion diagnostic claims and provides a pathway for additional coverage with evidence development, or CED, in other solid tumor types.

Increasing Utilization by Driving Repeat Physician Demand. Thousands of physicians from large academic centers and community-based practices have ordered FoundationOne, FoundationOneHeme, FoundationACT, and FoundationFocus CDx BRCA since their respective formal commercial launches. The expansion of our commercial

organization is driving volume growth by strengthening customer relationships with academic and community-based oncologists. We believe that this adoption, including repeat usage, demonstrates growing physician demand for a comprehensive solution to help in the treatment of their patients. In addition, we believe that increasing adoption and consistent utilization of our services and their impact on improving outcomes for patients with cancer will help lead to favorable coverage and reimbursement decisions.

Engaging Key Members of the Oncology Community. We continue to work with oncology thought leaders, professional societies, patient advocacy groups, and cancer networks. We believe these relationships help validate our platform, drive adoption of our services in the broad community oncology setting, and establish our leadership position in the field of molecular information about cancer. In addition, we believe adoption of our services by key members of the oncology community will help to influence the inclusion of FoundationOne, FoundationOneHeme, FoundationACT, FoundationFocus CDx BRCA, and FoundationOne CDx in practice guidelines as well as coverage decisions by commercial third-party payors and government payors.

Publishing in Peer-Reviewed Publications. We seek to publish in scientific and medical journals such as Nature Medicine, Nature Biotechnology, Journal of Thoracic Oncology, Cancer Discovery, Clinical Cancer Research, Blood, Hematology & Oncology, and others. Our publications have covered novel scientific findings, clinical utility of test results, individual patient outcomes, and common traits of genomic alterations in primary and metastatic tumors, among many others. We believe that our approach, which we have designed to be rigorous and data-driven, is important in establishing requisite evidence of the clinical and analytical validity and clinical utility of our services with payors.

Demonstrating Clinical Utility. To demonstrate the impact of our services on physician treatment decisions and patient outcomes, we have conducted and will continue to conduct a number of clinical studies with organizations such as US Oncology, MD Anderson Cancer Center, MSKCC, and other leading academic and community-based medical centers.

Optimizing Health Economics. We have built economic models to measure the financial dynamics of using our services in guiding patient treatment by selecting targeted and immunotherapy drugs for patients, and for minimizing the use of drugs that will not likely have a positive impact. We launched several health economics studies in late 2015 and presented posters on our findings at the American Society of Clinical Oncology Annual Meeting in June 2017. We are also pursuing multiple publications in 2018. We plan to use the data we gather through the use of these models and studies in our discussions with commercial third-party payors and government payors.

Coverage Determinations

We are focused on obtaining adequate reimbursement and coverage for our molecular information services from commercial third-party payors and government payors. The reimbursement environment is evolving as regulators and payors try to establish new rules and frameworks for the reimbursement of molecular diagnostic tests. Our continued ability to participate in the development and implementation of those rules and frameworks is important in order to differentiate between our services and other third-party tests in the marketplace.

With respect to commercial third-party payors, we continue to work with national and regional payors to obtain coverage. Representative of coverage decisions received from commercial third-party payors, in October 2014, we announced a formal agreement with Priority Health, a regional commercial third-party payor in Michigan, for broad coverage of FoundationOne and FoundationOneHeme, and in 2016, FoundationACT was added to coverage. In December 2015, we announced an agreement with UnitedHealthcare, one of the largest national insurers in the United States. The agreement covers FoundationOne for patients with initially diagnosed metastatic stage IV NSCLC. We have also entered into formal agreements with Blue Cross Blue Shield of Illinois, Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim, and HealthPartners.

Several large, self-insured organizations have also enacted coverage for some of our molecular information services as part of broad, best-in-class employee benefits packages. We also have direct agreements in place with various healthcare providers pursuant to which we process specimens using our molecular information services, and the providers pay us for the test results based on negotiated rates. We may also negotiate rates with individual patients if the patient is responsible for payment.

We believe we are also making important progress with government payors. In May 2015, Palmetto published a final LCD, which includes reimbursement for comprehensive genomic profiles for highly validated testing in an initial subset of patients diagnosed with NSCLC. The Palmetto website listed FoundationOne as a covered test under this LCD effective October 1, 2015. In September 2016, Palmetto expanded this LCD to include NSCLC patients regardless of smoking history and included requirements for the collection of data in a registry. In September 2016 we began submitting claims to Palmetto for FoundationOne cases performed at our North Carolina facility that met the Palmetto LCD criteria. In December 2016, Palmetto further revised the final LCD to remove the registry requirements from the LCD, and to require instead an annual review of publications and/or presentations of clinical utility data demonstrating that comprehensive genomic profiling for NSCLC improves patient outcomes and/or directs or changes selection of therapies to improve patient outcomes. Also in December 2016, Palmetto issued three draft LCDs for coverage and payment of CGP for patients with metastatic colorectal cancer, metastatic melanoma, and advanced primary peritoneal, fallopian tube and ovarian cancer, respectively.

Concurrent with FDA approval of FoundationOne CDx in November 2017, CMS issued a preliminary NCD that proposes nationwide Medicare coverage for FoundationOne CDx for eligible Medicare beneficiaries with advanced cancer (i.e., recurrent, metastatic, or advanced stage IV cancer), who have not been previously tested using the same NGS technology and continue to seek further cancer therapy. Specifically, the preliminary NCD proposes coverage for FoundationOne CDx for indications in which there are FDA-approved companion diagnostic claims. The preliminary NCD also proposes a pathway for additional coverage under CED in other solid tumor types. If the preliminary NCD is finalized in its current form, the terms of the final NCD would apply and the terms of any final or draft LCDs would not apply, including the Palmetto LCD for NSCLC, and FoundationOne will be considered non-covered by Medicare once the NCD is implemented.

As of December 31, 2017, we were not a participating provider in any state Medicaid program, and, therefore, did not have coverage decisions under which our tests were covered by these Medicaid programs.

Coding

We submit claims for our services to third-party payors using CPT codes for molecular testing services. We receive payments on some, but not all, of our claims submitted. In 2014, new CPT codes were approved by the American Medical Association, or AMA, that are intended to classify with greater specificity those molecular tests that rely on NGS and evaluate multiple genes at once. These new CPT Codes became effective on January 1, 2015. We do not believe that these CPT codes describe our tests since they do not appropriately differentiate our comprehensive genomic profiles from hotspot panel tests. Therefore, unless payors specifically request use of these CPT codes, we intend to continue submitting claims for our tests utilizing coding that we believe more accurately describes our tests, including stacked CPT codes, McKesson Z-Codes (as described below), and other potential accepted coding policies. When submitting claims for molecular services or procedures that do not have specific CPT codes, providers may submit those claims using a CPT code, referred to as the miscellaneous molecular CPT code, to provide the means of reporting and tracking services and procedures until a more specific CPT code is established. The use of a miscellaneous molecular CPT code for claims submitted to CMS may decrease the likelihood of reimbursement given that a miscellaneous CPT code is a single CPT code that does not represent a specific identified service or procedure.

To assist payors in making reimbursement and coverage decisions, the McKesson Diagnostics Exchange™, or McKesson DEX, was created. Tests that are registered with McKesson DEX are assigned, based on the uniqueness of each test, a five-digit alphanumeric McKesson Z-Code™ identifier, or Z-Code. These identifiers are intended to enable the consistent identification of tests across systems by laboratories, providers, and payors, and are reported separate from established CPT or other Healthcare Common Procedure Code System (HCPCS) codes. We believe the current CPT codes associated with NGS testing do not adequately address the comprehensive and precise characteristics of our tests, and therefore we have established unique Z-Codes for FoundationOne, FoundationOneHeme, FoundationACT, and FoundationFocus CDx BRCA.

Palmetto, which currently plays a leading role in many states regarding Medicare coverage determinations for complex molecular tests, has established the Molecular Diagnostic Services program, or MolDX, which is currently used to help determine coverage and payment for Medicare in more than 26 states. Z-Codes have been adopted by Palmetto as part of MolDX and by several commercial third-party payors.

We have received a Proprietary Laboratory Analysis, or PLA, code from the AMA for our FoundationOne CDx test. PLA codes are alphanumeric CPT codes with corresponding descriptors for labs or manufacturers that want to more specifically identify their test. Our PLA code was published in February 2018, and will become effective on April 1, 2018.

Billing Commercial Third-Party Payors

Currently, the significant majority of commercial third-party payors reimburse our claims based upon stacked CPT codes, the predominant methodology, or based on other methods such as percentages of charges or other formulas that are not made known to us. In addition, a small but growing portion of payors outsource our claims to preferred provider organizations or third-party administrators, who process our claims and pay us directly at negotiated rates. Coverage and payment is determined by the third-party payor on a case-by-case basis. Since we are not currently contracted with many commercial third-party payors, coverage and payment for our testing remains largely uncertain. We request that physicians discuss with their patients the potential responsibility of the patient for the cost of our services should the patient's insurance policy not cover those costs. We undertake the primary responsibility for obtaining third-party coverage on behalf of patients, including appeals for any initial denials, prior to billing a patient. With this practice established, we believe that most patients receiving our tests know that they may be responsible for some portion of the cost of the test should their third-party payor deny or limit coverage. We also offer a comprehensive patient assistance program, FoundationAccess.

Billing Government Payors

Although we are in the process of seeking a final NCD for FoundationOne CDx , there are currently no NCDs that establish whether and how our tests are covered and paid by Medicare. In the absence of NCDs, local MACs that administer the Medicare program in various regions have some discretion in determining coverage, the reimbursement rate, and payment for tests. The local MAC for our Cambridge laboratory, National Government Services, issued a final LCD effective April 1, 2016, to provide

coverage for hotspot tests of 5 to 50 genes for patients with metastatic NSCLC. We do not believe this LCD reflects coverage for our validated comprehensive genomic profiling services, which include comprehensive analysis of greater than 50 genes and all classes of alterations. As of December 31, 2017, National Government Services has either denied the FoundationOne or FoundationOneHeme claims that we have submitted using stacked CPT codes, or not processed and reimbursed us for the claims in a manner that we believe is consistent with applicable processing guidelines. In August 2016, we began submitting claims for FoundationACT tests associated with our Cambridge, Massachusetts laboratory to NGS using stacked CPT codes, and as of December 31, 2017, we have recognized revenue from some of those claims. The local MAC for our Research Triangle Park laboratory, Palmetto GBA, issued a final LCD, the Palmetto LCD, to cover well-validated comprehensive genomic profiles for initially diagnosed Stage IIIB and Stage IV NSCLC patients who meet the eligibility criteria. In January 2017, we began submitting claims to Palmetto for FoundationOne test requisitions where components of our testing services were performed in our North Carolina facility. In March 2017, we began receiving payment for eligible NSCLC claims submitted under the Palmetto LCD based upon the allowable rate of \$3,416 per test. In addition, on December 22, 2016, Palmetto issued three draft LCDs for the use of comprehensive genomic profiling to guide treatment in patients with metastatic colorectal cancer; with metastatic melanoma; and with advanced primary peritoneal, fallopian tube, and ovarian cancer. These draft LCDs are awaiting finalization.

If the preliminary NCD for FoundationOne CDx is finalized in its current form, the terms of the final NCD would apply the terms of any final or draft LCDs would not apply, including the Palmetto LCD for NSCLC, and FoundationOne will likely be considered non-covered by Medicare once the NCD is implemented.

We believe FoundationOne CDx will meet the criteria of a New Advanced Diagnostic Laboratory Test, or New ADLT, which was created under the Protecting Access to Medicare Act of 2014, or PAMA. We are awaiting guidance from CMS on the mechanism to achieve formal designation of FoundationOne CDx as a new ADLT.

There is a subset of Medicare patients that fall under the Medicare 14-Day Rule, requiring us to bill the ordering institution directly instead of billing Medicare. We have recognized some revenue for these patients upon receipt of payment from the institution.

Investing in Ongoing and New Product Innovation

We were founded as a scientifically and medically driven company and are dedicated to ongoing innovation in our molecular information services and precision oncology product pipeline. We have invested, and will continue to invest, significant time and resources into the improvement of our platform and the development and introduction of new molecular information products and services that will increase the actionability, connectivity, and utilization of our clinical products and enable more efficient drug development by our biopharmaceutical partners.

We believe we have a first mover advantage in offering comprehensive genomic profiling products that interrogate with precision the genes known to be altered in human cancer. Since our formal commercial launch of FoundationOne in June 2012, we have continued to invest in its improvement, including periodic updates to increase the number of relevant cancer-related genes, decrease tissue size requirements, increase sensitivity, and improve turnaround time. We have incorporated RNA-based sequencing technology into FoundationOneHeme to identify additional gene fusions commonly found in hematologic malignancies and sarcomas. We have also innovated and launched three additional assays, FoundationACT, which enables highly accurate molecular profiling from a blood sample when a tissue biopsy is not available or accessible, FoundationFocus CDx BRCA, an FDA-approved companion diagnostic to aid in identifying women with ovarian cancer for whom treatment with RubracaTM (rucaparib) is being considered, and FoundationOne CDx, the first FDA-approved broad CGP assay for solid tumors incorporating multiple companion diagnostics.

We endeavor to stay at the cutting edge of molecular information and genomic testing and to maintain our competitive advantages by continuously exploring and developing new clinically relevant approaches to improving cancer care.

Our ongoing research and technology development efforts to advance our product pipeline and expand the impact of molecular information for improving cancer care include:

- building on our recent FDA success with a regulated products strategy;
- broadening our understanding of biomarkers of response to targeted therapies and immunotherapies, and researching immuno-diagnostic assays;
- developing new products to evaluate and monitor cancer progression over time;
- creating and enhancing decision support applications such as FoundationSmartTrials and FoundationInsights;
- advancing data-driven insights into new therapeutic modalities that enable drug discovery and development; and,
- enhancing clinical trial design.

Operations

We currently perform all of the services for FoundationACT, FoundationFocus CDx BRCA, and FoundationOne CDx in our clinical laboratories located in Cambridge, Massachusetts. We perform some of the services for FoundationOne and FoundationOneHeme in our North Carolina laboratory and some of the services in our Cambridge laboratory through referral. Since October 2017, we perform services for FoundationOne for most European countries in our laboratory in Penzberg, Germany. When a

physician orders our products, he or she does not need to alter the standard surgical technique or tissue handling processes. The physician's staff typically completes an order form (by hand, electronically, or via electronic medical records technology), packages the specimen in a kit we provide, and then ships the kit via overnight carrier to one of our labs. Once we receive the specimen at one of our laboratories and enter all pertinent information about the specimen into our clinical laboratory information management system, we prepare the specimen for testing. The analysis for all of our assays consists of three parts: specimen preparation, sequencing, and data analysis and reporting.

Specimen Preparation

For FoundationOne, where samples are submitted as FFPE blocks or slides, our first step is pathology review, in which we assess the quality of the tissue sample to determine if it is suitable for testing using FoundationOne. We are able to process samples for testing using a very small amount of DNA. In general, the sample must be at least 40 microns in thickness and consist of at least 20% tumor cells. Almost all samples meeting our tissue requirements will allow for extraction of enough high-quality DNA (>50 nanograms; optimal 200 nanograms) for FoundationOne for solid tumor analysis.

For FoundationOneHeme samples submitted as FFPE blocks or slides, the process is exactly as outlined for FoundationOne above except that we extract both DNA and RNA from these specimens, 50 nanograms and 300 nanograms, respectively, and the requisite tissue thickness is 80 microns. For FoundationOneHeme samples that are received as fresh peripheral blood or bone marrow aspirate, we prepare a smear and perform a morphologic review in order to confirm adequate cellularity and tumor/lesional tissue content (e.g., 20%) before the specimen is sequenced.

For FoundationACT, blood samples are submitted in blood collection tubes containing a preservative that helps stabilize nucleated cells to minimize cell lysis during normal shipping conditions.

We extract the DNA from the plasma component of the blood sample, and in order to be acceptable to proceed through testing, the amount of DNA extracted must be 20 nanograms or more.

Following FoundationOne test ordering, pathology review, and DNA extraction, the extracted DNA is broken down into small fragments which we then manipulate using standard and molecular biology techniques, some of which represent our trade secrets and know-how, to create a complex mixture of DNA molecules. We then separate additional DNA fragments from the DNA representing the relevant cancer genes through our proprietary hybrid capture process. After hybrid capture, we are ready to interrogate the DNA content to determine where the critical genomic alterations exist.

The DNA component of the FoundationOneHeme test is similar to the FoundationOne process described above, but the RNA component has an additional step where the RNA must first be converted into cDNA. Once in this state, the RNA component of the FoundationOneHeme test progresses side-by-side with the DNA component.

The DNA component of the FoundationACT test is similar to the FoundationOne process described above once the extraction step is complete, the DNA has been quantified, and the specimen is determined to be adequate.

Post-DNA extraction laboratory processes for FoundationFocus CDx BRCA and FoundationOneCDx are identical to that of FoundationOne, however, these assays have slightly different DNA input requirements. FoundationFocus CDx BRCA requires 200 nanograms of DNA while FoundationOneCDx only requires 55 nanograms.

Sequencing

The content of each DNA or cDNA molecule is determined using a process called sequencing in which sequences of DNA molecules, or nucleotides, are identified in every position of every molecule. NGS involves the massively

parallel sequencing of DNA or RNA isolated from human cells that, in the context of cancer, can be applied to genes throughout the entire cancer genome. Our products are able to detect genomic alterations that may be present in as low as 1% of all cells being tested. We have made substantial modifications to our process in order to maximize throughput, efficiency, and quality based upon the NGS technology supplied by Illumina, Inc., or Illumina, that we currently use.

Data Analysis and Reporting

At the end of the sequencing process, we have identified the entire coding regions of the relevant genes, and that data is entered into a sophisticated series of our proprietary computational algorithms designed to detect and identify all genomic alterations present in the cancer sample.

Sequence analysis involves a careful alignment of every DNA sequence with a known reference sequence. We have validated our algorithms that perform this alignment by running tens of thousands of samples through the process. Once all DNA sequences are aligned against the reference and quality filters have been applied, specific algorithms search for differences between the sequenced DNA and the reference. These differences represent potential genomic alterations.

Not all of the genomic alterations that are detected are responsible for driving the cancer; therefore, we further distill the alterations to a point where we have a list of only those alterations that are cancer drivers and where there is a therapy, FDA-approved

drug, or available clinical trial for which the patient is eligible based on the genomic characteristics of the patient's sample. A qualified computational biologist further scrutinizes identified alterations to ensure accuracy.

The last part of our process involves synthesizing the data into clinically relevant information. This is a multi-faceted procedure performed by a team of trained scientists that culminates in the production and review of an integrated report, which contains information about the alterations detected and what therapeutic options may be available based on the genomic findings in a given patient's sample. This report is reviewed and signed by our medical staff and is returned to the ordering physician who can use the data in conjunction with a clinical assessment to inform his or her treatment decisions.

A report is typically delivered to the physician within two weeks from the time the specimen is received.

Quality Assurance

We are committed to providing reliable and accurate molecular information to our customers. Accurate specimen identification, timely communication of results, and prompt correction of errors is critical. We monitor our quality through a variety of methods, including performance improvement indicators, proficiency testing, internal and external audits, and satisfaction surveys. Any quality concerns and incidents are subject to risk assessment, root cause analysis, and a corrective action plan that is reviewed monthly with department management to ensure that we are providing the best products possible to our customers. Protection of patient results from misuse and improper access is important and thus patient confidential information is only accessible by necessary personnel.

We have established a comprehensive quality assurance program for our laboratories designed to produce accurate and timely test results and to ensure the consistent high quality of our tests. Our quality assurance program includes policies and procedures covering personnel qualifications and training requirements, process and test validation, quality control of reagents and test processes, proficiency testing, routine monitoring, and internal audits. Quality control metrics are assessed at various points in the testing process and final disposition of patient results requires adherence to quality control metrics that meet and exceed recommendations by professional organizations and regulatory authorities. Additionally, the long-term trends in quality control metrics are reviewed monthly by management. Our quarterly internal quality assurance audits cover pre-analytic, analytic and post-analytic functions, assess improvement indicators, and set new metrics for the following quarter. We also have an extensive, internally administered program of specimen proficiency testing to ensure that test performance is reproducible and functioning optimally.

Policies and procedures have been developed to satisfy all applicable requirements necessary for federal and state licensures and accreditation for clinical diagnostic laboratories. We follow the policies and procedures for patient and employee safety, hazardous waste disposal, and fire codes stated in the general laboratory procedure manuals. We believe that all pertinent regulations of CLIA, Occupational Safety and Health Administration, Environmental Protection Agency, and FDA are satisfied by following the established guidelines and procedures of our quality assurance program.

Reproducibility

Our ability to reproduce high quality results is critical to ensuring that we deliver better-informed treatment options to the greatest number of patients with cancer. For example, we have worked to ensure the results of FoundationOne and FoundationOneHeme are commensurate by conducting an extensive analytical validation that robustly demonstrates test performance using both reference specimens and hundreds of routine FFPE clinical cancer specimens with results derived from prior standard diagnostic tests. For example, in validation studies on actual clinical cancer specimens, including samples where as few as 20% of the nuclei in the specimen were derived from tumor cells, high accuracy for FoundationOne was observed across all classes of genomic alterations, including sensitivity greater than 99% for detection of base substitutions, greater than 98% for detection of indels, and greater than 95% for detection of copy

number alterations. Our specificity was greater than 99% across all classes of alterations.

Instrumentation and Reagent Supply Agreement

In July 2013, we entered into a five-year supply, service and support agreement with Illumina, or the Supply Agreement, which was most recently amended in April 2017, for Illumina to provide products and services that support and can be used for the gene sequencing component of our molecular testing activities. During the term of the Supply Agreement, Illumina will supply us and our German subsidiary with sequencers, reagents and other consumables for use with the Illumina sequencers, and service contracts for the maintenance and repair of the sequencers.

During the term of the Supply Agreement, we are required to make a rolling forecast of our expected needs for reagents and other consumables, and we may place purchase orders for reagents and other consumables that conform to such forecast. Illumina may not unreasonably reject conforming purchase orders and will, in its reasonable discretion, accept additional purchase orders for quantities of reagents and other consumables beyond our forecast requirements. During each six-month period we have a binding obligation to purchase an amount of reagents and other consumables equal to the greater of a percentage of our six-month forecast and a fixed minimum amount. Subject to discounts that vary depending on the volume of hardware and reagents and other consumables ordered, the price for sequencers and for service contracts is based on Illumina list prices, and the price for reagents and other consumables is based on contract prices that are fixed for a set period of time and may increase thereafter, subject to limitations. The

Supply Agreement does not require us to order minimum amounts of hardware, or to use exclusively the Illumina platform for conducting our sequencing.

We may use equipment, reagents and other materials supplied by third parties in the operation of our business. The Supply Agreement contains customary use restrictions, representations and warranties, indemnification obligations, limitations of liability, and other provisions.

Intellectual Property

Our business relies upon proprietary technologies, methods and processes, product designs and branding that we have invented, developed, or licensed. Our policy is to seek patent protection and trademark registration for commercially valuable assets we develop, as appropriate, and maintain as trade secrets other aspects of our proprietary platform, processes, and know-how.

Patents

Our patent portfolio includes multiple issued patents in the United States and various foreign countries, pending U.S. provisional and utility applications, and strategically focused corresponding international applications filed via the Patent Cooperation Treaty and foreign national and regional counterpart applications. We believe our portfolio of patents and patent applications serve to protect our business in the United States and in foreign jurisdictions in which we elect to pursue and are successful in obtaining patent rights. The patents and patent applications in our patent portfolio fall into three broad categories relating to:

- genomic analysis methodologies, modalities, and procedures, including claims directed to process innovations and advances in solution hybridization, bait selection and capture, variant calling, and novel advanced analytics;
- genomically-driven innovations, including novel methods of treatment elucidated by analysis of genomic alterations harbored by tumors of a given cancer type; and
- genomic information and correlated treatment and outcome information management, matching, and delivery, including claims directed to web-mediated systems for capturing, managing, tracking and reporting genomic information and associated clinical outcome data, as well as other applications relating to annotation and curation of genomic results for medical reporting.

Our patent portfolio provides us with potential royalty-bearing licensing opportunities. These opportunities arise primarily with companies developing or selling therapeutic products for cancer treatment or cancer diagnostic tests. It may be determined that the products or tests they are developing or selling require a license to the methods claimed in our patents and patent applications.

Trade Secrets and Trademarks

In addition to patents, we rely on trade secrets and know-how to develop and maintain our competitive position. For example, significant elements of our products, including aspects of sample preparation, computational-biological algorithms, and related processes and software, are based on unpatented trade secrets and know-how that are not publicly disclosed. We protect trade secrets and know-how by establishing confidentiality agreements and invention assignment agreements with our employees, consultants, scientific advisors, contractors, and commercial partners. These agreements generally provide that all confidential information developed or made known during the course of an individual or entity's relationship with us must be kept confidential during and after the relationship and that all inventions or developments resulting from work performed for us or relating to our business and conceived or completed during the period of employment or assignment, as applicable, shall be our exclusive property. In addition, we take other appropriate precautions, such as physical and technological security measures, to guard against misappropriation of our proprietary technology by third parties. We have also adopted policies and conduct training for our employees and consultants that provides guidance on our expectations, and our advice for best practices, in protecting our trade secrets.

We also seek trademark protection in the United States and in foreign jurisdictions where available and when appropriate. Foundation Medicine®, FoundationOne®, FoundationACT®, FoundationICE®, Interactive Cancer Explorer®, Once. And for All®, and The Molecular Information Company® are all registered trademarks of Foundation in the United States, and several of these marks are at various stages of the registration process in other countries. FoundationOne CDx™, FoundationCORE™, FoundationFocus™, FoundationInsights™, PatientMatch™, Precision Medicine Exchange Consortium™, and FoundationSmartTrials™ are also trademarks of Foundation Medicine. Other trademarks or service marks that may appear in this Annual Report are the property of their respective holders. For convenience, we do not use the ® and ™ symbols in each instance in which one of our trademarks appears throughout this Annual Report, but this should not be construed as any indication that we will not assert, to the fullest extent under applicable law, our rights thereto.

Competition

We believe our product portfolio is currently the only commercially available portfolio of comprehensive molecular information products that provide a fully informative genomic profile in a concise and actionable format designed for use in the clinical setting,

backed by rigorous peer-reviewed validation studies. Our principal competition comes from existing large and small commercial diagnostic companies, as well as certain medical institutions that offer single-marker or hotspot panel tests that can capture only the most common and known gene alterations and a limited set of gene rearrangements. Although these tests assess only a limited number of genes, are unable to detect copy number alterations, and often miss short indels, in many circumstances, these are the diagnostic methods that physicians use and have used for many years. It may be difficult to change the methods or behavior of the referring physicians to incorporate our products into their practices. In addition, academic research centers and NGS platform developers are offering or developing NGS-based testing intended to be comprehensive for known cancer genes that may seek to compete with our products on the number of genes they interrogate. We have also observed increased competition from companies that offer similar molecular information tests. However, we continue to believe we have unique capabilities in providing requisite sensitivity and specificity, operational scale, or reporting elements to fit the realities of current clinical practice, including volume and quality limits of tumor samples, demands on turnaround time, and ease of use.

Single-Marker and Hotspot Panel Tests

We may face competition from companies that offer products or have conducted research to profile genes and gene expression in various cancers. Personalized genetic diagnostics is a new area of science, and we cannot predict what tests others will develop that may compete with or provide results comparable or superior to the results we are able to achieve. Our competitors include laboratory companies such as Bio-Reference Laboratories, Inc., Laboratory Corporation of America Holdings, Quest Diagnostics Incorporated, Caris Life Sciences, Guardant Health, Paradigm, NeoGenomics Laboratories, as well as companies that manufacture or may manufacture diagnostic testing kits such as Abbott Laboratories, Qiagen N.V., Roche Diagnostics, and Thermo Fisher Scientific. These kits, which companies often include with capital equipment and reagents to local pathology laboratories, can be used directly by the physician, which can facilitate adoption. In addition, companies such as Genomic Health, Inc. and Myriad Genetics, Inc., have well-established commercial organizations that sell molecular diagnostic tests to physicians and may develop tests which compete with our products on price.

Academic Research Centers and NGS Platforms

Some hospitals and academic centers may look to internalize the type of comprehensive molecular testing we perform. Our competition may include entities such as the MD Anderson Cancer Center, MSKCC, University of Michigan, Baylor Medical Genetics Laboratories, Washington University in St. Louis, University of Washington, and other academic hospitals and research centers. Although these academic centers could have greater access to, and ability to drive adoption with, certain key thought leaders than we do, we expect that the competition from these academic centers will, for the most part, be restricted to their local markets.

In addition to developing kits, certain life sciences and diagnostic companies also provide NGS platforms. Illumina, Thermo Fisher Scientific, Inc., and other companies develop NGS platforms that are being sold directly to research centers, pharmaceutical companies, and clinical laboratories. While many of the applications for these platforms are focused on the research and development markets and others are focused on testing for non-cancer conditions, each of these companies has launched and may continue to commercialize products used in the clinical oncology market. Illumina and Thermo Fisher Scientific have received FDA approval for a diagnostic kit for clinical use in oncology, which are sold to clients who have purchased their platforms. A number of private companies are also developing information technology-based tools to support the integration of NGS testing into the clinical setting. These companies could have substantially greater financial, technical, and other resources than we do and may be more successful than we may be in achieving widespread market acceptance. Any tests they develop may be more effective, or more effectively marketed and sold, than FoundationOne CDx, FoundationOne, FoundationOneHeme, FoundationACT, or FoundationFocus CDx BRCA.

Liquid Biopsy Assays

There is excitement within the oncology community about the promise of liquid biopsy assays for their potential to improve cancer diagnosis and optimize patient care. We believe that a ctDNA assay is an important tool for providers when a tissue biopsy cannot be obtained, when tissue has been depleted or when resistance to targeted therapies is expected. There are a variety of techniques for analyzing ctDNA for a single gene or multiple genes. We believe we have developed an accurate, reliable, and comprehensive ctDNA assay, FoundationACT, that provides new options for patients when tissue is not available. Developed with input from our biopharmaceutical partners, FoundationACT includes a clinically relevant gene list with 99% positive predictive value at specified mutant allele frequencies. FoundationACT has been analytically validated for all four types of alterations clinically relevant to the treatment of cancer.

Several diagnostic companies have developed and launched, or plan to launch, ctDNA assays. Some of these companies include Biocept, Exosome Diagnostics, Guardant Health, Genomic Health, Invitae, Personal Genome Diagnostics, Qiagen, and Roche Diagnostics, among others.

Our Competitive Strengths

Our molecular information platform enables us to offer comprehensive molecular information products that interrogate with precision the genes known to be altered in human cancer. Our products are uniquely differentiated from other oncology diagnostic products because, to our knowledge, they are the first and only products to comprehensively address all solid tumors and hematologic malignancies, and to deliver a clear, concise report detailing clinically relevant treatment alternatives. We believe our molecular information services have a sustainable competitive advantage on the basis of:

- our ability, with FoundationOne, to assess 315 cancer-related genes for all classes of genomic alterations with high sensitivity and specificity, unlike currently available single gene tests and hotspot panel tests, which focus only on a limited number of genes and a subset of genomic alteration types;
- our ability, with FoundationOneHeme, to detect all classes of genomic alterations, including base pair substitutions, indels, copy number alterations and select gene rearrangements in 406 cancer-related genes, in addition to utilizing RNA sequencing across 265 genes to capture a broad range of gene fusions, a type of alteration that is a common driver of hematologic cancers and sarcomas;
- our ability, with FoundationACT, our ctDNA assay, to reliably and accurately find all the clinically relevant alterations in 62 genes from a blood sample when a tissue biopsy is not an option. We believe the introduction of FoundationACT enables us to strengthen our established Foundation Medicine brand to be the molecular information solution of choice for providers with a full suite of highly validated and reliable products to aid in cancer diagnosis and treatment;
- our ability, with FoundationFocus CDx BRCA, our first, FDA-approved companion diagnostic, to aid in identifying women with ovarian cancer for whom treatment with Rubraca™ (rucaparib) is being considered;
- our ability, with FoundationOne CDx, the first FDA-approved broad CGP assay for solid tumors to incorporate multiple companion diagnostics to identify patients who may benefit from treatment with specific FDA-approved targeted therapies, to help inform the use of other targeted oncology therapies, including immunotherapies, to help physicians identify patient opportunities for clinical trial participation and to provide biopharmaceutical companies an FDA-approved platform for companion diagnostic development;
 - our ability, to receive reimbursement from Medicare for FoundationOne CDx for several tumor types;
- our proprietary optimizations allow us to utilize a wide variety of sample types, including small biopsies and fine needle aspirates, and samples with low tumor purity;
- our ability to leverage our expertise and relationships with oncology thought leaders to keep pace with scientific and medical advances to, among other things, incorporate newly relevant cancer genes along with newly available targeted therapeutics and clinical trials;
- our ability to deliver, in a concise report, actionable information regarding the relevant genomic alterations in a patient's cancer and to match these alterations with targeted therapies based on peer-reviewed literature in a medically relevant time frame;
- our ability to accelerate precision medicine in oncology, through a complete suite of molecular information decision support applications, including FoundationSmartTrials, a program to increase patient access to investigational agents and clinical trials;
- our efforts to capture, aggregate, analyze, and facilitate the broader exchange of genomic data across the global oncology community, including our efforts with PMEC, to create a network effect as we gather more data which will lead to more users and ultimately more comprehensive datasets;
- our ability to leverage the vast array of genomic data generated by our molecular information platform, and included in FoundationCore, together with clinical data, for example, through our relationship with Flatiron, to position ourselves at the nucleus of this new treatment paradigm;
- our strategic collaboration with Roche, which we believe accelerates all aspects of our business, including advancing our leadership position in precision medicine, supporting our innovative product development efforts, contributing to education and awareness among providers in the United States, significantly expanding our commercial opportunities globally, and strengthening our balance sheet and operating leverage;

•our ability to actively participate in the development of the newest oncology therapeutics and practice through our relationships with biopharmaceutical partners; and

•our ability to provide value-added services to help our physician customers and patients act on the results of their comprehensive genomic profiling test results, including through FoundationACCESS.

Strategic Collaboration with Roche

On April 7, 2015, we closed our broad, strategic collaboration with Roche and certain of its affiliates in the field of molecular information for oncology, including an R&D collaboration, a U.S. educational support collaboration, an Ex-U.S. commercial collaboration, a binding term sheet for an in vitro diagnostic product development collaboration, and an equity investment with certain governance provisions. We believe our strategic collaboration with Roche is a competitive differentiator for our business for its ability to:

- expand and accelerate our global commercial reach for our molecular information services and enable greater patient access to personalized care;
- to accelerate and inform our research and development efforts toward new patient care innovations like TMB, bTMB and other innovative new markers and tests; and,
- enable access to capital that allow us to strengthen our balance sheet and continue to build value for investors via non-dilutive mechanisms.

Transaction Agreement

Under the terms of the Transaction Agreement, dated January 11, 2015, by and between us and Roche Holdings, Inc., or the Transaction Agreement, Roche made an equity investment, or the Investment, including (1) a primary investment of \$250 million in cash to purchase 5 million newly issued shares of our common stock at a purchase price of \$50.00 per share and (2) a tender offer in which Roche acquired 15,604,288 outstanding shares of our common stock at a price of \$50.00 per share. As of December 31, 2017, Roche owned approximately 57.5% of our outstanding common stock.

Collaboration

In connection with the Investment and simultaneously with the execution of the Transaction Agreement, we entered into a strategic collaboration with certain affiliates of Roche to develop and commercialize comprehensive molecular information and genomic analysis products for the treatment of cancer patients, or the Collaboration, pursuant to (a) a Collaboration Agreement, or, as amended, the R&D Collaboration Agreement, by and among us, F. Hoffmann-La Roche Ltd, or Roche Basel, and Hoffmann-La Roche Inc., or Roche U.S., (b) a US Education Collaboration Agreement, or the U.S. Education Collaboration Agreement, by and between us and Genentech, (c) an Ex-U.S. Commercialization Agreement, or, as amended and restated, the Ex-U.S. Commercialization Agreement, by and between us and Roche Basel, and (d) a Binding Term Sheet for an In Vitro Diagnostics (IVD) Agreement, or the IVD Term Sheet, by and between us and Roche Basel, each of which became effective April 7, 2015. In April 2016, we entered into a Master IVD Collaboration Agreement, or the IVD Collaboration Agreement, with Roche Basel and Roche Molecular Systems, Inc., which memorialized in a definitive agreement the principal terms set forth in the IVD Term Sheet. We refer to the R&D Collaboration Agreement, the U.S. Education Collaboration Agreement, the Ex-U.S. Commercialization Agreement, and the Master IVD Collaboration Agreement collectively as the Collaboration Agreements.

Pursuant to the R&D Collaboration Agreement, we are collaborating with Roche on multiple programs related to the use and development of products and services for use in molecular information, immunotherapy, ctDNA, and companion diagnostics. These programs are being conducted pursuant to agreed-upon work plans and are subject to the oversight of a joint research and development committee. Under the molecular information platform program, Roche is required to pay us \$85 million over five years, which commenced in April 2015, for the molecular genomic profiling of a minimum number of cancer samples and to access our molecular information database. We could also receive up to approximately \$74 million for the scope of activities related to the immunotherapy testing platform program, the ctDNA platform program, and the companion diagnostics platform program. The initial term of the molecular information platform program under the R&D Collaboration Agreement ends in April 2020. However, certain provisions of the R&D Collaboration Agreement may remain in effect after such initial five-year term so long as Roche and its affiliates own at least a majority of the outstanding shares of our common stock. We or Roche may

terminate the R&D Collaboration Agreement in the event of a breach of the agreement by the other party.

Pursuant to the U.S. Education Collaboration Agreement, we and Genentech, a wholly owned subsidiary of Roche, are conducting an education support program for healthcare professionals and laboratories in the United States regarding the use of next-generation sequencing and comprehensive genomic profiling technology. Genentech will develop education materials based upon information related to comprehensive genomic profiling provided by us, and we and Genentech share the costs related to the education support program activities. In addition, in the event we seek to promote any companion diagnostic product for use with a Genentech therapeutic in the United States, Genentech will have a right of first negotiation, subject to certain conditions, with respect to the co-promotion of such companion diagnostic product. The U.S. Education Collaboration Agreement will remain in effect for five years from April 2015, and either party may terminate the agreement without cause upon three months' written notice, and either party may terminate in the event of a breach by the other party.

Pursuant to the Ex-U.S. Commercialization Agreement, which was recently amended and restated in February 2018, Roche has the right, subject to the terms and conditions of such agreement, to commercialize our existing clinical diagnostic testing products,

including FoundationOne, FoundationOneHeme, FoundationACT, FoundationOne CDx, any clinical diagnostic products developed under the R&D Collaboration Agreement, and any other products upon mutual agreement. Roche has the exclusive right to commercialize such products worldwide, excluding the United States, and any countries excluded pursuant to the terms of the agreement. Roche also holds a right of first negotiation with respect to the commercialization of our future clinical diagnostic products, excluding in vitro diagnostic kit products, companion diagnostic products developed by us for third parties, and any standalone data or molecular information products. In connection with the commercial launch of a given product in a given country or region, Roche must, among other things, establish and maintain a dedicated sales force (which is prohibited from promoting, and may not be directly compensated by the sale of, oncology therapeutics), provide marketing message for the product that is consistent with our messaging relating to that product in the United States, and provide customer support for the product. Roche has also agreed to additional regulatory and commercialization obligations relating specifically to FoundationOne CDx. Pursuant to the terms of the agreement, we and Roche have agreed upon the process by which FoundationOne CDx will replace FoundationOne in each country in the Roche commercialization territory in which we determine to commercially launch FoundationOne CDx. In the event that Roche does not satisfy any of its commercial launch or other obligations in a given country, we have the right to terminate Roche's exclusive commercialization rights in such country. Roche will also pay agreed upon royalties and commercial milestones for each of the products. Further, if Roche fails to meet certain minimum revenue requirements for FoundationOne, FoundationOneHeme, FoundationACT, or FoundationOneCDx for three consecutive years in a specified country, we have the right to terminate Roche's exclusive commercialization rights in the applicable country. The Ex-U.S. Commercialization Agreement will remain in effect until April 2020 and may be extended by Roche for additional two-year periods. Roche has the right to terminate the agreement without cause upon six months' written notice after the initial five-year term, and either party may terminate the agreement in the event of breach by the other party.

The IVD Collaboration Agreement provides terms for us and Roche to collaborate non-exclusively to develop and commercialize in vitro diagnostic versions of certain of our existing products, including FoundationOne and FoundationOneHeme, and our future products, including those developed under the R&D Collaboration Agreement. The IVD Collaboration Agreement expires on April 7, 2020, unless earlier terminated as provided therein. Roche also has the right, in its sole discretion, to extend the term of the IVD Collaboration Agreement for additional two-year periods of time during any period of time in which Roche continues to hold at least 50.1% of our capital stock. Either party may terminate the IVD Collaboration Agreement for an uncured breach of the agreement, or for insolvency or bankruptcy.

Investor Rights Agreement

In connection with the Investment and simultaneously with the execution of the Transaction Agreement, we entered into an Investor Rights Agreement, or the Investor Rights Agreement, which became effective April 7, 2015, with Roche and certain of our former stockholders.

Following the closing in April 2015: (a) so long as Roche beneficially owns at least 10% of the outstanding shares of our common stock, it will be entitled to the lesser of (i) the number of seats representing 33.34% of our Board and (ii) proportionate representation on our Board, which provision was waived by Roche until our 2017 annual meeting of stockholders in connection with the appointment of Troy Cox, our Chief Executive Officer, to the Board, and (b) so long as Roche is entitled to appoint at least one director to our Board, it will be entitled to proportionate representation on each committee of our Board, subject to compliance with the applicable rules of the SEC and the NASDAQ Stock Market.

Until such time as Roche and its affiliates beneficially own less than a majority of the outstanding shares of our common stock (subject to a cure period), we may not take certain actions without Roche's prior written consent, including any of the following: (a) appoint a new Chief Executive Officer; (b) incur any indebtedness (as defined in the Investor Rights Agreement) that would result in the outstanding aggregate principal amount of the indebtedness of us and our subsidiaries exceeding the lesser of (A) \$200 million and (B) 20% of our aggregate market capitalization at

the time of such incurrence; (c) issue or sell any equity securities (including any securities convertible or exercisable into such equity securities), other than (X) common stock issued upon the exercise or settlement of equity awards granted as of the date of the Investor Rights Agreement in accordance with their terms, (Y) equity awards granted after the date of the Investor Rights Agreement pursuant to our 2013 Stock Option and Incentive Plan or any permitted new equity incentive plan or equity incentive plan amendment, and (Z) in connection with permitted acquisitions, certain shares of our common stock issued as stock consideration as long as such issuance does not result in Roche beneficially owning less than 50.5% of the outstanding shares of common stock on a fully diluted basis; (d) establish or amend any of our equity incentive plans, except for certain permitted equity incentive plans and permitted equity incentive plan amendments; (e) acquire any entity, business or assets if the aggregate consideration payable by us exceeds the lesser of (X) \$200 million and (Y) 20% of our aggregate market capitalization at the time of such transaction, unless Roche is separately contemplating acquiring the same entity, business or assets; (f) dispose of any entity, business or assets if the aggregate consideration payable to us exceeds \$50 million; (g) change the scope and nature of our business; (h) amend our organizational documents; (i) take any action that would impair in any material respect our ability to perform our obligations under the Investor Rights Agreement or Roche's rights thereunder; or (j) voluntarily dissolve or liquidate or make any voluntary bankruptcy filings.

Voting Obligations. As long as Roche is entitled to appoint at least one director to our Board, Roche will be required to (a) cause all of its shares of our common stock to be present for quorum purposes at any meeting of our stockholders, (b) vote all of its shares of

our common stock to approve any matter requiring approval by Roche described in the preceding paragraph that Roche has approved within the previous six months, and (c) vote all of its shares of our common stock in connection with the election of directors or the adoption of certain equity incentive plans either (i) in accordance with the recommendation of our Board or (ii) in the same proportion as the votes cast by all of our stockholders other than Roche and its affiliates.

Standstill Provisions. Under the terms of the Investor Rights Agreement, from April 7, 2015 until April 7, 2018, or the Restricted Period, Roche will be restricted from acquiring additional shares of our common stock, except in order to offset dilution and maintain its aggregate percentage ownership in us. During the Restricted Period and for as long as Roche has the right to designate a director, Roche shall not make any proxy solicitations in connection with the election or removal of our directors, or knowingly encourage or facilitate a third party to engage in any such solicitation, subject to certain limited exceptions.

Following the Restricted Period, Roche will be permitted to make an offer to purchase all remaining shares of our common stock held by our stockholders, or a Roche Buyout Offer. Prior to April 7, 2020, any Roche Buyout Offer shall be made on a confidential basis, subject to the review, evaluation and approval of a special committee of independent directors who are unaffiliated with Roche and are not our officers or employees, or the Disinterested Directors, and subject to a non-waivable condition that a majority of the shares of our common stock held by stockholders not affiliated with Roche approve the Roche Buyout Offer. From and after April 7, 2020, any Roche Buyout Offer may be made directly to our stockholders without the review, evaluation or approval of our Board or the Disinterested Directors, as long as it is subject to the non-waivable condition that a majority of the shares of our common stock held by stockholders not affiliated with Roche approve the Roche Buyout Offer. If, from and after April 7, 2020, Roche makes a Roche Buyout Offer, then at any subsequent annual meeting of our stockholders (or special meeting called for the purpose of electing directors), Roche will be entitled to nominate any individuals who qualify as independent directors under the terms of the Investor Rights Agreement.

The standstill restrictions on Roche will automatically terminate if Roche ceases to own at least 20% of our outstanding common stock or we enter into a definitive agreement with respect to, or our Board recommends to our stockholders, a transaction pursuant to which any person or group would acquire, directly or indirectly, voting securities representing more than 20% of the aggregate voting power of all of our then-outstanding voting securities.

Anti-dilution Protections. We have agreed to establish and maintain a stock repurchase program and to repurchase shares of our common stock in order to maintain Roche's aggregate percentage ownership at no less than 50.5% of the outstanding shares of our common stock on a fully diluted basis, less any shares transferred by Roche until the earlier of (a) any transfer by Roche of shares of our common stock, following which Roche beneficially owns less than 40% of the outstanding shares of our common stock on a fully diluted basis and (b) Roche beneficially owning less than 30% of the outstanding shares of our common stock.

Until the date on which Roche beneficially owns less than 30% of the outstanding shares of our common stock, Roche also will hold a continuing option to purchase shares of common stock directly from us or in the open market, at prevailing market prices, in order to maintain its aggregate percentage ownership at no less than 50.5% of the outstanding shares of our common stock on a fully diluted basis, less any shares transferred by Roche, or the Share Percentage Cap. If we fail to or are unable to satisfy our repurchase obligations under the stock repurchase program described above, and Roche purchases shares of common stock from us or in the open market, the Share Percentage Cap will be increased by the percentage of the outstanding shares of common stock, on a fully diluted basis, represented by the shares of common stock that Roche was required to purchase at its cost in order to maintain its aggregate percentage ownership.

In the event that we issue any securities and, as a result thereof, Roche beneficially owns less than 50.1% of the outstanding shares of our common stock on a fully diluted basis, the restrictions on Roche under the Investor Rights Agreement (including with respect to the agreement to vote Roche's shares of common stock, the standstill restrictions

and the transfer restrictions), but not the rights of Roche under the Investor Rights Agreement, will immediately terminate, and Roche will thereafter have the ability to exercise in full its rights as a stockholder.

Restrictions on Transfer of Shares. Roche may not transfer any shares of our common stock during the Restricted Period. Thereafter, subject to certain exceptions, Roche may not transfer any shares of our common stock to any person or group, if such person or group would beneficially own in excess of 10% of the outstanding shares of our common stock following such transfer, without the prior consent of a special committee of Disinterested Directors. Following April 7, 2020, Roche will be permitted to transfer all (but not less than all) of its shares of our common stock to a third party that has made an offer to us or our stockholders (including pursuant to a tender offer) to purchase all of the outstanding shares of our common stock if the price, form of consideration and other terms and conditions of the transfer offered to Roche are the same (or no more favorable) than the price, form of consideration and other terms and conditions offered to all of our other stockholders, other than (a) fair market consideration payable in exchange for entering into restrictive covenants and (b) commercial agreements (including with respect to transition services) on arm's-length terms, in each case that the purchaser requires as a condition to the transaction.

Registration Rights. Following the Restricted Period, Roche will be entitled to customary demand and piggyback registration rights, subject to customary underwriter cutbacks.

Matters Reserved for Approval of the Disinterested Directors. For as long as there is at least one director designated by Roche on our Board, the following actions will require approval of a majority of the Disinterested Directors (or a special committee of Disinterested Directors): (a) any transaction between Roche or any of its affiliates, on the one hand, and us, on the other hand; (b) any enforcement or waiver of our rights under any agreement between us, on the one hand, and Roche or any of its affiliates, on the other hand; and (c) any purchase of shares of our common stock by Roche or any of its affiliates, except as otherwise expressly set forth in the Investor Rights Agreement.

Freedom to Pursue Opportunities. As a general matter, neither we nor Roche will be required to offer a corporate opportunity to the other, and except as agreed in connection with the Collaboration or as part of the Investor Rights Agreement, there will be no restrictions on our or Roche's ability to engage in similar activities or lines of business.

Termination. The Investor Rights Agreement will automatically terminate on the later of the date Roche beneficially owns less than 10% of the outstanding shares of our common stock or the date that Roche owns no Registrable Securities (as defined in the Investor Rights Agreement).

The foregoing summary descriptions of the Transaction Agreement, the Investment, the Collaboration Agreements and the Investor Rights Agreement do not purport to be complete and are qualified in their entirety by reference to the applicable agreements, copies of which are filed with this Annual Report.

Credit Facility

In August 2016, we entered into a Credit Facility Agreement, or the Credit Facility, with Roche Finance Ltd, or Roche Finance, an affiliate of Roche, which provided for borrowing up to \$100 million. In July 2017, we amended the Credit Facility. Pursuant to the Credit Facility, as amended, during the four-year period ending August 2, 2020, or the Draw Period, we expect to borrow up to \$200 million, of which \$80 million was available immediately, \$70 million became available upon the achievement of certain milestones in November 2017, and \$50 million will be available upon the achievement of certain additional milestones. During the Draw Period, we shall pay Roche Finance a quarterly commitment fee of 0.4% on the available balance of the Credit Facility. Loans made under the Credit Facility bear interest at 6.5% per annum. We shall pay Roche Finance, on a quarterly basis, during the Draw Period and for six months thereafter, accrued interest on the outstanding principal of the loans. Beginning six months after the Draw Period and for five years thereafter, we shall pay Roche Finance quarterly equal payments of principal, with accrued interest, until maturity of the Credit Facility on February 2, 2026.

The Credit Facility is secured by a lien on all of our tangible and intangible personal property, including, but not limited to, shares of our subsidiaries (65% of the equity interests in the case of foreign subsidiaries), intellectual property, insurance, trade and intercompany receivables, inventory and equipment and contract rights, and all proceeds and products thereof (other than certain excluded assets). The Credit Facility contains certain affirmative covenants, including, among others, obligations for us to provide monthly and annual financial statements, to meet specified minimum cash requirements, to provide tax gross-up and indemnification protection, and to comply with laws. The Credit Facility also contains certain negative covenants, including, among others, restrictions on our ability to dispose of certain assets, to acquire another company or business, to encumber or permit liens on certain assets, to incur additional indebtedness (subject to customary exceptions) and to pay dividends on our common stock. The Credit Facility also provides for a number of events of default, including, among others, defaults due to non-payment, bankruptcy, failure to comply with covenants, breaches of a representation and warranty, change of control, a material adverse effect, and judgment defaults.

Governmental Regulations

Clinical Laboratory Improvement Amendments of 1988 and State Regulation

As a clinical laboratory, we are required to hold certain federal and state licenses, certifications, and permits to conduct our business. As to federal certifications, in 1988, Congress passed the CLIA, establishing quality standards for all laboratory testing to ensure the accuracy, reliability, and timeliness of patient test results regardless of where the test was performed. Our laboratories in Cambridge, MA and North Carolina are each CLIA certified and accredited by the CAP, a CLIA-approved accrediting organization. In addition, we are required to meet certain laboratory licensing requirements for states with regulations beyond CLIA. For more information on state licensing requirements, see below in the section entitled “Governmental Regulations—State Laboratory Testing.”

Under CLIA, a laboratory is any facility which performs laboratory 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. CLIA also requires that we hold a certificate applicable to the type of work we perform and comply with certain standards. CLIA further regulates virtually all clinical laboratories by requiring they be certified by the federal government and comply with various operational, personnel, facilities administration, quality, and proficiency requirements intended to ensure that their clinical laboratory testing services are accurate, reliable, and timely. Laboratories must register and list their tests with The Centers for Medicare & Medicaid Services, or CMS, the agency that oversees CLIA. CLIA compliance and certification is also a prerequisite to be eligible to

bill for services provided to governmental payor program beneficiaries and for many private payors. CLIA is user-fee funded. Therefore, all costs of administering the program must be covered by the regulated facilities, including certification and survey costs.

We are subject to survey and inspection every two years to assess compliance with program standards, and may be subject to additional unannounced inspections. Laboratories performing high complexity testing are required to meet more stringent requirements than laboratories performing less complex tests. In addition, a laboratory like ours that is certified as “high complexity” under CLIA may develop, manufacture, validate, and use proprietary tests referred to as laboratory developed tests, or LDTs. While laboratories that offer LDTs are subject to the Federal Food, Drug, and Cosmetic Act, or the FDCA, in addition to CLIA, the FDA has generally exercised enforcement discretion towards these tests. In compliance with CLIA requirements to establish performance specifications including accuracy, precision, specificity, sensitivity, and a reference range for any LDT used in clinical testing, our LDTs have undergone full analytical validation.

In addition to CLIA requirements, we elect to participate in the accreditation program of CAP. CMS has deemed CAP standards to be equally or more stringent than CLIA regulations and has approved CAP as a recognized accrediting organization. Inspection by CAP is performed in lieu of CMS for accredited laboratories. Because we are accredited by the CAP Laboratory Accreditation Program, we are deemed to also comply with CLIA.

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. State laws may require that laboratories meet certain personnel qualifications, specify certain quality control procedures, meet facility requirements, or prescribe record maintenance requirements.

State Laboratory Testing

Several states require the licensure of out-of-state laboratories that accept specimens from those states. For example, New York requires a laboratory to hold a permit which is issued after an on-site inspection and approval of testing methodology, and has various requirements over and above CLIA and CAP, including those for personnel qualifications, proficiency testing, physical facility, equipment, and quality control standards. Each of our CLIA laboratory locations, including a site in Massachusetts and a site in North Carolina, holds the appropriate licensure for the activities performed at that location.

From time to time, other states may require out-of-state laboratories to obtain licensure in order to accept specimens from the state. If we identify any other state with such requirements, or if we are contacted by any other state advising us of such requirements, we intend to follow instructions from the state regulators as to how we should comply with such requirements.

Regulation of In Vitro Diagnostic Devices (IVDs)

We currently market two in vitro diagnostic, or IVD, companion diagnostic devices: FoundationFocus CDx BRCA, which was approved by the FDA in December 2016 as a companion diagnostic to aid in identifying women with ovarian cancer for whom treatment with Rubraca™ (rucaparib) is being considered, and FoundationOne CDx, which was approved by the FDA in November 2017 as a broad companion diagnostic to identify patients who may benefit from treatment with a number of therapies for multiple types of cancer. As defined by the FDA, an IVD companion diagnostic is a medical device that provides information that is essential for the safe and effective use of a corresponding drug or biological product. An IVD companion diagnostic helps a health care professional determine whether a particular therapeutic product’s benefits to patients will outweigh any potential side effects or risks. FDA-approval of FoundationFocus CDx BRCA and FoundationOne CDx as IVDs was based on demonstration of safety and effectiveness of each respective test, including a robust demonstration of each test’s analytical and clinical validity, along with evidence of each test’s clinical utility in guiding therapy with the respective therapeutic drug.

FoundationFocus CDx BRCA and FoundationOne CDx are approved to be run in our Cambridge laboratory. As approved medical devices, both tests are subject to the post-market requirements of the FDCA and ongoing FDA oversight, including unannounced inspection for compliance with the FDA's QSR (codified at 21 CFR 820) and other post-market requirements applicable to devices. The laboratory in which FoundationFocus CDx BRCA and FoundationOne CDx are run must maintain a quality system for the design, manufacture, packaging, labeling, storage, installation, and servicing of FoundationFocus CDx BRCA and FoundationOne CDx. This is in addition to the existing CLIA, CAP and state oversight described above regarding laboratory testing. Any future modification to these devices could, depending on the scope of the change, require FDA notification and could trigger additional premarket review by the FDA pursuant to a supplemental application.

FDA

The FDA regulates the sale and distribution in interstate commerce of medical devices under the FDCA, including in IVDs, reagents, and instruments used to perform diagnostic testing. Devices must undergo premarket review by the FDA prior to commercialization unless the device is of a type exempted from such review by statute, regulation, or pursuant to the FDA's exercise of enforcement discretion. We currently market FoundationFocus CDx BRCA as a companion diagnostic to Clovis' drug Rubraca™ (rucaparib). In addition, we currently market FoundationOne CDx for solid tumors including NSCLC, colorectal, breast, ovarian, and

melanoma. FoundationFocus CDx BRCA and FoundationOne CDx are regulated by the FDA as a Class III medical devices and are marketed pursuant to approved PMAs.

Laboratory Developed Tests

The FDA does not currently regulate most LDTs, such as FoundationOne, FoundationOneHeme, and FoundationACT. The FDA historically took the position that, although such LDTs are medical devices, it would exercise enforcement discretion by not requiring compliance with the FDCA or its regulations. However, in June 2010, the FDA announced that it intended to no longer exercise enforcement discretion for LDTs and in October 2014, the FDA published two draft guidance documents that, if finalized, would implement a regulatory approach for most LDTs. In the draft guidance documents, the FDA stated that it had serious concerns regarding the lack of independent review of the evidence of clinical validity of LDTs and asserted that the requirements under CLIA, do not address the clinical validity of any LDT. The draft guidance documents proposed to impose a risk-based, phased-in approach for LDTs similar to the existing framework for in vitro diagnostic devices. On November 18, 2016, the FDA announced that it would not finalize the draft guidance documents for LDTs prior to the end of the Obama administration.

However, in January 2017, the FDA released a discussion paper synthesizing public comments on the 2014 draft guidance documents and outlining a possible approach to regulation of LDTs. The discussion paper has no legal status and does not represent a final version of the LDT draft guidance documents. In the discussion paper, the FDA states that there is “a growing consensus that additional oversight of LDTs is necessary.” Similar to the FDA’s 2014 draft guidance, the FDA’s discussion paper proposes a risk-based framework that would require most LDTs to comply with most of the FDA’s regulatory requirements for medical devices. Unlike the draft guidance, however, the discussion paper proposes to exempt currently marketed LDTs from premarket review, requiring only new or modified tests to be approved or cleared by the agency. In addition, the FDA proposed requiring LDTs to comply with only a subset of the medical device QSRs and proposed other changes from the 2014 draft guidance.

Under the Trump administration, the FDA has not yet taken any regulatory action to regulate LDTs and has indicated that the agency would support legislative action. We cannot predict whether the FDA will take action to regulate LDTs under the new administration or what approach the FDA will seek to take. Legislative proposals have been introduced in Congress or publicly circulated, each of which would implement differing approaches to the regulation of LDTs. We cannot predict whether any of these legislative proposals will be enacted into law or the impact such new legal requirements would have on our business. In the meantime, we maintain our CLIA certification, which permits us to offer LDTs for diagnostic purposes.

Regulated Medical Devices

Legislative proposals have been introduced in Congress or publicly circulated, each of which would implement differing approaches to the regulation of LDTs. We cannot predict whether any of these legislative proposals will be enacted into law or the impact such new legal requirements would have on our business. In the meantime, we maintain our CLIA certification, which permits us to offer LDTs for diagnostic purposes.

FDA regulations pertaining to medical devices govern, among other things, the research, design, development, pre-clinical and clinical testing, manufacture, safety, effectiveness, clearance or approval, record-keeping, packaging, labeling, storage, adverse event reporting, advertising, promotion, marketing, sales, distribution, import, and export of medical devices. Pursuant to the FDCA, medical devices are subject to varying degrees of regulatory control and are classified in one of three classes depending on the controls the FDA determines necessary to reasonably ensure their safety and effectiveness.

Class I devices are those for which reasonable assurance of safety and effectiveness can be provided by adherence to the FDA’s general controls for medical devices, which include applicable portions of the FDA’s QSR, facility registration and product listing; reporting of adverse medical events; and appropriate, truthful, and non-misleading

labeling, advertising and promotional materials. Many Class I devices are exempt from premarket regulation; however, some Class I devices require clearance by the FDA through the 510(k) premarket notification process described below.

Class II devices are subject to the FDA's general controls, and any other special controls, such as performance standards, post-market surveillance, and FDA guidelines, deemed necessary by the FDA to provide reasonable assurance of the devices' safety and effectiveness. Premarket review and clearance by the FDA for Class II devices are accomplished through the 510(k) premarket notification procedure, although some Class II devices are exempt from the 510(k) requirements. Premarket notifications are subject to user fees, unless a specific exemption applies. To obtain 510(k) clearance, a manufacturer must submit a premarket notification demonstrating that the proposed device is "substantially equivalent" to a predicate device, which is a previously cleared 510(k) device or a preamendment device that was in commercial distribution before May 28, 1976, for which the FDA has not yet called for the submission of a premarket approval, or PMA, application. In determining substantial equivalence, the FDA assesses whether the proposed device has the same intended use and technical characteristic as the predicate device, or whether the proposed device has different technological characteristics, but the information submitted in the premarket notification demonstrates the device is as safe and effective as a legally marketed device and does not raise different questions of safety and effectiveness than the predicate device. The FDA may request additional information, including clinical data. Under the FDCA, a manufacturer must submit a premarket notification at least 90 days before introducing a device into interstate commerce, but the FDA's review of the premarket notification

can take significantly longer. If the FDA determines that the device is substantially equivalent to the predicate device(s), the subject device may be marketed. However, if the FDA determines that a device is not substantially equivalent to the predicate device(s), then the device would be regulated as a Class III device, discussed below. If a manufacturer obtains a 510(k) clearance for its device and then makes a modification that could significantly affect the device's safety or effectiveness, a new premarket notification must be submitted to the FDA.

Class III devices are those deemed by the FDA to pose the greatest risk, such as those for which reasonable assurance of the device's safety and effectiveness cannot be assured solely by the general controls and special controls described above and that are life-sustaining or life-supporting. Some preamendment Class III devices for which the FDA has not yet required a PMA require the FDA's clearance of a premarket notification in order to be marketed. However, most Class III devices are required to undergo the PMA process in which the manufacturer must demonstrate reasonable assurance of the safety and effectiveness of the device to the FDA's satisfaction. A PMA application must provide valid scientific evidence, typically extensive preclinical and clinical trial data, and information about the device and its components regarding, among other things, device design, manufacturing, and labeling. PMA applications (and supplemental PMA applications) are subject to significantly higher user fees than 510(k) premarket notifications. Some PMA applications are exempt from a user fee, for example, a small business's first PMA.

After a PMA application is submitted and found to be sufficiently complete, the FDA begins an in-depth review of the submitted information. During this review period, the FDA may request additional information or clarification of information already provided. The FDA also may convene an advisory panel of outside experts to review and evaluate the application and provide recommendations to the FDA as to the approvability of the device. In addition, the FDA generally will conduct a pre-approval inspection of the manufacturing facility to ensure compliance with the QSR. The FDA can delay, limit, or deny approval of a PMA application for many reasons.

If the FDA's evaluations of both the PMA application and the manufacturing facilities are favorable, the FDA will either issue an approval letter authorizing commercial marketing or an approvable letter that usually contains a number of conditions that must be met in order to secure final approval. If the FDA's evaluations are not favorable, the FDA will deny approval of the PMA or issue a not approvable letter. The agency may determine that additional clinical trials are necessary, in which case the PMA approval may be delayed while the trials are conducted and the data acquired and submitted in an amendment to the PMA. Even with additional trials, the FDA may not approve the PMA application. The PMA process, including the gathering of clinical and nonclinical data, and the submission to the FDA for review, can take several years, and the process can be expensive and uncertain.

Even if the FDA approves a PMA, the agency can impose post approval conditions that it believes necessary to ensure the safety and effectiveness of the device, including, among other things, restrictions on labeling, promotion, sale, and distribution. After approval of a PMA, a new PMA or PMA supplement may be required for a modification to the device, its labeling, or its manufacturing process.

A clinical trial may be required in support of a 510(k) submission and generally is required for a PMA application. These trials generally require an Investigational Device Exemption, or IDE, approved by the FDA for a specified number of patients, unless the product is exempt from IDE requirements or deemed a non-significant risk device eligible for abbreviated IDE requirements. The IDE application must be supported by appropriate data, such as animal and laboratory testing results, showing that it is safe to test the device in humans and that the testing protocol is scientifically sound. Clinical trials may begin 30 days after the submission of the IDE application unless the FDA disapproves the IDE or places the trial on clinical hold. Additionally, clinical trials may not begin until their protocol and informed consent receive approval from the appropriate institutional review boards at the clinical trial sites. All clinical trials must be conducted in accordance with the FDA's IDE regulations, and we may need to submit information on certain clinical trials to a database maintained by the National Institutes of Health, in compliance with clinical trial reporting regulations.

Even if regulatory approval or clearance of a device is granted, the FDA may impose limitations on the uses and indications for which the device may be labeled and promoted, and the device remains subject to significant regulatory requirements. Medical devices may be marketed only for the uses and indications for which they are cleared or approved. Device manufacturers must register their facilities and list their devices with the FDA. A device manufacturer's manufacturing processes and those of some of its suppliers are required to comply with the applicable portions of the QSR, which cover quality management, design, purchasing controls, document controls, production and process controls, quality assurance, corrective and preventative actions, labeling, packaging, shipping, and complaint handling. Device manufacturers must submit to the FDA medical device reports for deaths, serious injuries, and certain malfunctions and report certain field corrections and product recalls or removals. Some manufacturers also may be subject to post-market surveillance regulations. Facility records and manufacturing processes are subject to periodic unscheduled inspections by the FDA.

Failure to comply with applicable regulatory requirements can result in enforcement action by the FDA, which may include any of the following sanctions: public warning letters, fines, injunctions, civil or criminal penalties, recall or seizure of products, operating restrictions, partial suspension or total shutdown of production, delays in or denial of 510(k) clearance or PMA applications for new or modified products, challenges to existing 510(k) clearances or PMA applications, and a recommendation by the FDA to disallow a device manufacturer from entering into government contracts. The FDA also has the authority to request repair, replacement, or refund of the cost of any device manufactured or distributed. In the event that a supplier fails to maintain compliance with a device

manufacturer's quality requirements, the manufacturer may have to qualify a new supplier and could experience manufacturing delays as a result.

If FDA takes action to regulate LDTs as devices, we believe that our LDTs would likely be regulated as either Class II or Class III devices. Accordingly, premarket review—either a 510(k), de novo application, or a PMA—would likely be required for our test if the FDA no longer applies its enforcement discretion to LDTs and our tests do not qualify as grandfathered tests that are exempted from premarket review. While the data requirements are typically greater for Class III devices, the data required for Class II devices has increased, and it is likely that some amount of clinical data (retrospective or prospective or both) would be required for any type of submission to the FDA. We believe that products we may develop in the future for use as companion diagnostic tests are likely to be regulated as Class III devices requiring PMA approval. We cannot assure you that our current products and other future products will not require 510(k) clearance or PMA approval in the future, or, in such an event, that such approval or clearance would be forthcoming.

The FDA also regulates software products if the products meet the definition of a medical device. Software may be regulated as a medical device if it is intended for the diagnosis, cure, mitigation, treatment, or prevention of disease; if it is a component of a medical device; or if it is an accessory to a medical device. Section 520(o) of the FDCA, which was enacted as part of the 21st Century Cures Act in December 2016, excludes certain software functions from the statutory definition of a device. The FDA has also issued guidance documents in which the agency announced that it plans to exercise enforcement discretion over certain software products. If the software is regulated as a medical device and is not subject to FDA enforcement discretion, the software may be subject to premarket review requirements and post-market regulatory requirements. We continue to evaluate our software products to determine they will be subject to preapproval and post-market requirements, but we cannot assure you that the FDA will not change its policy regarding the regulation of these products.

HIPAA and HITECH

Under the administrative simplification provisions of HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or the HITECH Act, the United States Department of Health and Human Services issued regulations that establish uniform standards governing the conduct of certain electronic health care transactions and protecting the privacy and security of protected health information used or disclosed by health care providers and other covered entities. Three principal regulations with which we are required to comply have been issued in final form under HIPAA: privacy regulations, security regulations, and standards for electronic transactions, which establish standards for common health care transactions. The privacy and security regulations were extensively amended in 2013 to incorporate requirements from the HITECH Act.

The privacy regulations cover the use and disclosure of protected health information by health care providers and other covered entities. They also set forth certain rights that an individual has with respect to his or her protected health information maintained by a health care provider, including the right to access or amend certain records containing protected health information, or to request restrictions on the use or disclosure of protected health information. The security regulations establish requirements for safeguarding the confidentiality, integrity, and availability of protected health information that is electronically transmitted or electronically stored. The HITECH Act, among other things, established certain protected health information security breach notification requirements. A covered entity must notify affected individual(s) and the United States Department of Health and Human Services when there is a breach of unsecured protected health information. The HIPAA privacy and security regulations establish a uniform federal “floor” that health care providers must meet and do not supersede state laws that are more stringent or provide individuals with greater rights with respect to the privacy or security of, and access to, their records containing protected health information. Massachusetts, for example, has a state law that protects the privacy and security of personal information of Massachusetts residents that is more prescriptive than HIPAA.

These laws contain significant fines and other penalties for wrongful use or disclosure of protected health information. Additionally, to the extent that we submit electronic health care claims and payment transactions that do not comply with the electronic data transmission standards established under HIPAA and the HITECH Act, payments to us may be delayed or denied.

Federal, State and Foreign Fraud and Abuse Laws

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

In the United States, the federal Anti-Kickback Statute prohibits, among other things, knowingly and willfully offering, paying, soliciting or receiving remuneration to induce or in return for patient referrals for, or purchasing, leasing, ordering or arranging for the purchase, lease or order of, any health care item or service reimbursable under a governmental payor program. Courts have stated that a financial arrangement may violate the Anti-Kickback Statute if any one purpose of the arrangement is to encourage patient referrals or other federal health care program business, regardless of whether there are other legitimate purposes for the arrangement. The

definition of “remuneration” has been broadly interpreted to include anything of value, including gifts, discounts, credit arrangements, payments of cash, consulting fees, waivers of co-payments, ownership interests, and providing anything at less than its fair market value. Recognizing that the Anti-Kickback Statute is broad and may technically prohibit many innocuous or beneficial arrangements within the health care industry, the U.S. Department of Health and Human Services issued a series of regulatory “safe harbors.” These safe harbor regulations set forth certain provisions, which, if met, will assure health care providers and other parties that they will not be prosecuted under the federal Anti-Kickback Statute. Although full compliance with these provisions ensures against prosecution under the federal Anti-Kickback Statute, the failure of a transaction or arrangement to fit within a specific safe harbor does not necessarily mean that the transaction or arrangement is illegal or that prosecution under the federal Anti-Kickback Statute will be pursued. Penalties for federal anti-kickback violations are severe, and include imprisonment, criminal fines, civil money penalties, and exclusion from participation in federal health care programs. Many states also have anti-kickback statutes, some of which may apply to items or services reimbursed by any third-party payor, including commercial insurers.

Legislation defining two new federal crimes related to health care were recently enacted: health care fraud and false statements relating to health care matters. The health care fraud statute prohibits knowingly and willfully executing a scheme to defraud any health care benefit program, including private payors. A violation of this statute is a felony and may result in fines, imprisonment, or exclusion from governmental payor programs such as the Medicare and Medicaid programs. The false statements statute prohibits knowingly and willfully falsifying, concealing or covering up a material fact, or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for health care benefits, items, or services. A violation of this statute is a felony and may result in fines, imprisonment, or exclusion from governmental payor programs.

Finally, another development affecting the health care industry is the increased enforcement of the federal False Claims Act and, in particular, actions brought pursuant to the False Claims Act’s “whistleblower” or “qui tam” provisions. The False Claims Act imposes liability on any person or entity that, among other things, knowingly presents, or causes to be presented, a false or fraudulent claim for payment by a federal governmental payor program. The qui tam provisions of the False Claims Act allow a private individual to bring actions on behalf of the federal government alleging that the defendant has defrauded the federal government by submitting a false claim to the federal government and permit such individuals to share in any amounts paid by the entity to the government in fines or settlement. When an entity is determined to have violated the False Claims Act, it may be required to pay up to three times the actual damages sustained by the government, plus civil penalties ranging from \$5,500 to \$11,000 for each false claim.

In addition, various states have enacted false claim laws analogous to the federal False Claims Act, although many of these state laws apply where a claim is submitted to any third-party payor and not merely a governmental payor program.

In Europe various countries have adopted anti-bribery laws providing for severe consequences, in the form of criminal penalties and/or significant fines, for individuals and/or companies committing a bribery offence. Violations of these anti-bribery laws, or allegations of such violations, could have a negative impact on our business, results of operations and reputation. For instance, in the United Kingdom, under the Bribery Act 2010, which went into effect in July 2011, a bribery occurs when a person offers, gives or promises to give a financial or other advantage to induce or reward another individual to improperly perform certain functions or activities, including any function of a public nature. Bribery of foreign public officials also falls within the scope of the Bribery Act 2010. Under the new regime, an individual found in violation of the Bribery Act 2010, faces imprisonment of up to 10 years. In addition, the individual can be subject to an unlimited fine, as can commercial organizations for failure to prevent bribery.

Physician Referral Prohibitions

Under a federal law directed at “self-referral,” commonly known as the “Stark Law,” there are prohibitions, with certain exceptions, on referrals for certain designated health services, including laboratory services, that are covered by the Medicare and Medicaid programs by physicians who personally, or through a family member, have an investment or ownership interest in, or a compensation arrangement with, an entity performing the tests. The prohibition also extends to payment for any testing referred in violation of the Stark Law. A person who engages in a scheme to circumvent the Stark Law’s referral prohibition may be fined up to \$100,000 for each such arrangement or scheme. In addition, any person who presents or causes to be presented a claim to the Medicare or Medicaid programs in violation of the Stark Law is subject to civil monetary penalties of up to \$15,000 per bill submission, an assessment of up to three times the amount claimed and possible exclusion from participation in federal governmental payor programs. Bills submitted in violation of the Stark Law may not be paid by Medicare or Medicaid, and any person collecting any amounts with respect to any such prohibited bill is obligated to refund such amounts. Many states have comparable laws that are not limited to Medicare and Medicaid referrals.

Corporate Practice of Medicine

Numerous states have enacted laws prohibiting business corporations, such as us, from practicing medicine and employing or engaging physicians to practice medicine, generally referred to as the prohibition against the corporate practice of medicine. These laws are designed to prevent interference in the medical decision-making process by anyone who is not a licensed physician. For example, California’s Medical Board has indicated that determining what diagnostic tests are appropriate for a particular condition and taking responsibility for the ultimate overall care of the patient, including providing treatment options available to the patient, would

constitute the unlicensed practice of medicine if performed by an unlicensed person. Violation of these corporate practice of medicine laws may result in civil or criminal fines, as well as sanctions imposed against us and/or the professional through licensure proceedings. Typically, such laws are only applicable to entities that have a physical presence in the state.

Other Regulatory Requirements

Our laboratories are subject to federal, state and local regulations relating to the handling and disposal of regulated medical waste, hazardous waste and biohazardous waste, including chemical, biological agents and compounds, blood and bone marrow samples, and other human tissue. Typically, we use outside vendors who are contractually obligated to comply with applicable laws and regulations to dispose of such waste. These vendors are licensed or otherwise qualified to handle and dispose of such waste.

The U.S. Occupational Safety and Health Administration has established extensive requirements relating to workplace safety for health care employers, including requirements to develop and implement programs to protect workers from exposure to blood-borne pathogens by preventing or minimizing any exposure through needle stick or similar penetrating injuries.

Segment, Revenue and Geographical Information

We operate in one reportable business segment and derive revenue from multiple countries, with 92.8%, 91.2%, and 92.7% of our total revenue coming from the United States in fiscal years 2017, 2016 and 2015, respectively. In 2017, we generated total revenue of \$152.9 million from the sale of our products, compared to \$116.9 million in 2016 and \$93.2 million in 2015.

In January 2015, we announced a broad strategic collaboration with Roche Holdings, Inc. and certain of its affiliates. This relationship has continued to expand and Roche accounted for more than 10% of our revenues in each of the years ended December 31, 2017, 2016, and 2015.

Employees

As of January 31, 2018, we had 662 full-time employees, with 380 in technology, research and development, business development and laboratory and commercial operations, and 99 in general and administrative functions. We had 516 full-time employees in our Cambridge, Massachusetts facilities, 51 full-time employees in our Morrisville, North Carolina facility, 17 full-time employees in our Penzberg, Germany facility, and 95 of our full-time employees work outside of Massachusetts and North Carolina. None of our employees are represented by a labor union with respect to his or her employment with us.

Research and Development Expenses

Research and development expenses increased to \$91.5 million for the year ended December 31, 2017 from \$67.4 million for the year ended December 31, 2016. The increase was primarily attributed to a \$12.9 million increase in personnel-related costs and a \$9.1 million increase in consulting costs.

Research and development expenses increased to \$67.4 million for the year ended December 31, 2016 from \$43.9 million for the year ended December 31, 2015. The increase was primarily related to costs incurred for new product development, including FoundationFocus CDx BRCA, and increased analytical validation to support our universal companion diagnostic and other companion diagnostic work. The increase was attributed to a \$9.8 million increase in employee and contractor-related expenses, a \$5.7 million increase in laboratory supply costs, including reagents utilized in research and development activities, a \$3.4 million increase in consulting costs, a \$2.5 million increase in laboratory management and facilities costs, and a \$2.1 million increase in clinical trial expenses.

Where You Can Find More Information

Our website address is www.foundationmedicine.com. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, including exhibits, proxy and information statements and amendments to those reports filed or furnished pursuant to Sections 13(a), 14, and 15(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, are available through the “Investors” portion of our website free of charge as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. Information on our website is not part of this Annual Report on Form 10-K or any of our other securities filings unless specifically incorporated herein by reference. The public may read and copy these materials at the SEC’s Public Reference Room at 100 F Street, NE, Washington, DC 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. In addition, our filings with the SEC may be accessed through the SEC’s Interactive Data Electronic Applications system at <http://www.sec.gov>. All statements made in any of our securities filings, including all forward-looking statements or information, are made as of the date of the document in which the statement is included, and we do not assume or undertake any obligation to update any of those statements or documents unless we are required to do so by law.

Item 1A.RISK FACTORS

The following risks and uncertainties, together with all other information in this Annual Report on Form 10-K, including our consolidated financial statements and related notes, should be considered carefully. Any of the risk factors we describe below could adversely affect our business, financial condition or results of operations, and could cause the market price of our common stock to fluctuate or decline.

Risks Relating to Our Business and Strategy

We may not be able to generate sufficient revenue from our clinical molecular information services or our relationships with our biopharmaceutical partners to achieve and maintain profitability.

We believe our commercial success is dependent upon our ability to successfully market and sell our current portfolio of molecular information services, to continue to expand our current relationships and to develop new relationships with biopharmaceutical partners, and to develop and commercialize new molecular information services. Our current portfolio of molecular information services includes FoundationOne® for solid tumors; FoundationOne®Heme for hematologic malignancies and sarcomas; FoundationACT®, our liquid biopsy assay for solid tumors; FoundationFocus™CDx BRCA, our United States Food and Drug Administration, or FDA, -approved companion diagnostic, to aid in identifying women with ovarian cancer for whom treatment with Rubraca™(rucaparib) is being considered; and FoundationOne CDx™, our FDA-approved broad companion diagnostic for solid tumors across multiple tumor types. The demand for our existing services may decrease or may not continue to increase at historical rates for a number of reasons, including among others, the development by competitors of new molecular diagnostic tests services that we are not able to commercialize and increased competition from companies that offer similar molecular diagnostic tests.

Our molecular information services have positive coverage decisions from only a few commercial third-party payors and do not have coverage contracts with or coverage decisions from most commercial third-party payors. Certain commercial third-party payors have designated some or all of FoundationOne, FoundationOneHeme, and FoundationACT as experimental and investigational and have declined to reimburse us for these services. This designation is customarily assigned to a service by a third-party payor pending the development of clinical information deemed sufficient to support a positive coverage decision. During this assessment period, we are not being reimbursed for our services from these third-party payors, resulting, in the aggregate, in a material loss of revenue to us.

With respect to government payors, concurrent with FDA-approval of FoundationOne CDx in November 2017, the Centers for Medicare & Medicaid Services, or CMS, issued a preliminary national coverage determination, or NCD, that proposes nationwide Medicare coverage for FoundationOne CDx and other similar next generation sequencing, or NGS, tests for Medicare beneficiaries with advanced cancer (i.e., recurrent, metastatic, or advanced stage IV cancer), who have not been previously tested using the same NGS technology, and continue to seek further cancer therapy. Specifically, the preliminary NCD proposes full coverage of FoundationOne CDx for its FDA-approved companion diagnostic claims, as well as a pathway for additional coverage under coverage with evidence development, or CED, in other solid tumor types. However, the preliminary NCD also proposes to limit coverage for FoundationOne (and other NGS-based tests offered as Laboratory Developed Tests, or LDTs) for patients with advanced cancer to tests offered within the context of a National Institute of Health-National Cancer Institute, or NIH-NCI, National Clinical Trial Network clinical trial. If the preliminary NCD is finalized in its current form, the terms of the final NCD will control over the terms of a final or draft local coverage determination, or LCD, and FoundationOne will be effectively non-covered by Medicare, once the NCD is implemented, when provided to patients with advanced cancer, including non-small cell lung cancer, or NSCLC, notwithstanding the existence of a favorable LCD issued by Palmetto GBA, or Palmetto, the Medicare Administrative Contractor, or MAC, for the jurisdiction in which our North Carolina laboratory is located.

Our biopharmaceutical partners may decide to decrease or discontinue their use of our molecular information platform due to changes in their research and development plans, failures in their clinical trials, financial constraints, the regulatory environment, the reimbursement landscape, or utilization of internal molecular testing resources or molecular tests performed by other parties, which are circumstances outside of our control. In addition, biopharmaceutical companies may decline to do business with us or decrease or discontinue their use of our molecular information platform due to our broad strategic collaboration with certain affiliates of Roche Holdings, Inc., or Roche, and the fact that Roche is our largest stockholder and beneficially owns a majority of our outstanding stock. In addition to reducing our revenue, if our biopharmaceutical partners decide to decrease or discontinue their use of our molecular information platform, this may reduce our exposure to early stage research that facilitates the incorporation of newly developed information about cancer into our molecular information platform and services.

We are currently not profitable. Even if we succeed in increasing adoption of our existing services by physicians, obtaining additional coverage decisions from commercial third-party payors and government payors, maintaining and creating relationships with our existing and new biopharmaceutical partners, and developing and commercializing additional molecular information services, we may not be able to generate sufficient revenue to achieve profitability.

Our molecular information services may never achieve significant commercial market acceptance.

Our molecular information services may never gain significant acceptance in the marketplace and, therefore, may never generate substantial revenue or profits for us. Our ability to achieve commercial market acceptance for our existing services will depend on several factors, including:

- our ability to convince the medical community of the clinical utility of our services and their potential advantages over existing and new molecular tests;
- the willingness of physicians and patients to utilize our services; and
- the agreement by commercial third-party payors and government payors to reimburse our services, the scope and amount of which will affect patients' willingness or ability to pay for our services and will likely heavily influence physicians' decisions to recommend our services.

In addition, physicians may rely on guidelines issued by industry groups, such as the National Comprehensive Cancer Network, medical societies, such as the College of American Pathologists, or CAP, or other key oncology-related organizations before utilizing any diagnostic test. Although we have a number of clinical trials sponsored by us and clinical trials sponsored by individual physicians, or investigator-initiated clinical trials, underway to demonstrate the clinical utility of each of our existing services, none of our services are, and may never be, listed in any such guidelines.

We believe that the successful completion of clinical trials, publication of scientific and medical results in peer-reviewed journals, and presentations at leading conferences are critical to the broad adoption of our services. Publication in leading medical journals is subject to a peer-review process, and peer reviewers may not consider the results of studies involving our services sufficiently novel or worthy of publication.

The failure to be listed in physician guidelines or the failure of our trials to produce favorable results or to be published in peer-reviewed journals could limit the adoption of our services. Failure to achieve widespread market acceptance of our services would materially harm our business, financial condition, and results of operations.

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

We rely on several sole suppliers, including Illumina, Inc., or Illumina, for certain laboratory substances used in the chemical reactions incorporated into our processes, or reagents, sequencers, equipment, and other materials which we use in our laboratory operations. The terms upon which we are able to purchase these supplies and materials from any supplier could be adversely affected by our broad strategic collaboration with Roche and the fact that Roche is our largest stockholder and beneficially owns a majority of our outstanding stock. An interruption in our laboratory operations could occur if we encounter delays or difficulties in securing these reagents, sequencers, or other laboratory materials, and if we cannot then obtain an acceptable substitute. Any such interruption could negatively impact research and development and launches of new services, and significantly affect our business, financial condition, results of operations, and reputation.

For example, we rely on Illumina as the sole supplier of sequencers and various associated reagents, and as the sole provider of maintenance and repair services for these sequencers. Our supply agreement with Illumina is also set to expire in July 2018. Any disruption in Illumina's operations, or our inability to negotiate an extension to our supply agreement or acceptable terms, or at all, could impact our supply chain and laboratory operations of our molecular information platform and our ability to conduct our business and generate revenue.

We believe that there are only a few other equipment manufacturers that are currently capable of supplying and servicing the equipment necessary for our laboratory operations, including sequencers and various associated reagents.

The use of equipment or materials furnished by these replacement suppliers would require us to significantly alter our laboratory operations. Transitioning to a new supplier would be time-consuming and expensive, may result in interruptions in our laboratory operations, would likely affect the performance specifications of our laboratory operations, and would require that we revalidate our existing assays. There can be no assurance that we would be able to secure alternative equipment, reagents, and other materials, and bring such equipment, reagents, and materials on line and revalidate them without experiencing interruptions in our workflow. In the case of an alternative supplier for Illumina, there can be no assurance that replacement sequencers and various associated reagents would be available or would meet our quality control and performance requirements for our laboratory operations. If we should encounter delays or difficulties in securing, reconfiguring, or revalidating the equipment and reagents we require for our assays, our business, financial condition, results of operations, and reputation could be adversely affected.

If one or more of our laboratory facilities become damaged or inoperable, if we are required to vacate any of our laboratory facilities, or if we are delayed in obtaining or unable to obtain additional laboratory space or delayed in commencing operations in our laboratory facilities, our ability to conduct our molecular information services, pursue our research and development efforts or our companion diagnostics partnerships, and fulfill our contractual obligations may be jeopardized.

Our revenue is primarily derived from testing services performed at our laboratory facilities. Our facilities and equipment could be harmed or rendered inoperable by natural or man-made disasters, including war, fire, earthquake, power loss, communications or internet failure or interruption, or terrorism, which may render it difficult or impossible for us to operate our molecular information platform for some period of time. The inability to perform our molecular tests or to reduce the backlog of analyses that could develop if one or more of our laboratories become inoperable, 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 any of our facilities or license or transfer our proprietary technology to a third party, particularly in light of the licensure and accreditation requirements for commercial laboratories like ours. Even in the unlikely event we are able to find a third party with such qualifications to enable us to perform our molecular tests, we may be unable to negotiate commercially reasonable terms with such third parties. Adverse consequences resulting from an interruption of our overall laboratory operations could harm relationships with our customers and regulatory authorities, and our reputation, and could affect our ability to generate revenue.

We may also construct, acquire, or enter into relationships with third parties to procure additional laboratory space inside and outside the United States to support our existing and new tests. Our R&D Collaboration Agreement with Roche contemplates that we will collaborate with Roche on multiple programs related to the development of services for use in molecular information, immunotherapy, circulating tumor DNA, or ctDNA, and companion diagnostics and that we will provide additional laboratory space in Europe and Asia to perform genomic sequencing outside of the United States. In October 2017, our laboratory facility in Penzberg, Germany became operational. If we are unable to obtain or are delayed in obtaining or establishing new laboratory space to support these commercialization and development efforts, or if our ex-United States laboratory operations are harmed or are rendered inoperable, we could fail to meet certain contractual obligations and agreed upon timelines with certain of our biopharmaceutical partners, including Roche, or provide existing services and develop and launch new services in certain territories, which could result in harm to our business and reputation, and adversely affect our business, financial condition, and results of operations. As we continue to transition some of our services to new laboratories, we could experience disruptions in overall laboratory operations and could require adjustments to meet regulatory requirements, resulting in our inability to meet customer turnaround time expectations. Any delays in this transition could result in slower realization of laboratory efficiencies anticipated from operating an additional laboratory facility. Adverse consequences resulting from an interruption of our overall laboratory operations could harm relationships with our customers and regulators, and our reputation, and could affect our ability to generate revenue.

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

If we are unable to support demand for our existing or future services, including ensuring that we have adequate capacity to meet increased demand, or we are unable to successfully manage the evolution of our molecular information platform, our business could suffer.

As our volume grows, we will need to continue to increase our workflow capacity for sample intake, customer service, billing, and general process improvements; expand our internal quality assurance program; and extend our molecular information platform to support comprehensive genomic analyses at a larger scale within expected turnaround times. We will need additional certified laboratory scientists and technicians and other scientific and technical personnel to process higher volumes of our molecular information services. Portions of our process are not automated and will require additional personnel to scale. We will also need to purchase additional equipment, some of which can take several months or more to procure, set up, and validate, and increase our software and computing capacity 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 in our laboratory facilities to accommodate such required expansion.

As we commercialize additional services, we will need to incorporate new equipment, implement new technology systems and laboratory processes, and hire new personnel with different qualifications. For example, we may procure additional laboratory space to allow us to further develop new services. Failure to manage this growth or transition could result in turnaround time delays, higher service costs, declining service 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 services, and could damage our reputation and the prospects for our business.

The development of new services involves a lengthy and complex process, and we may be unable to successfully commercialize new services, or any other services we may develop, on a timely basis, or at all, and the development and commercialization of additional services may negatively affect the commercialization of existing services.

FoundationOne CDx, which was approved by the FDA in November 2017, will take time to successfully commercialize, and there can be no assurance that this product will be successful in the evaluation of cancers for a variety of technical and market reasons. Additionally, because the implementation of the final NCD will render FoundationOne effectively non-covered by Medicare when

provided to patients with advanced cancer, including NSCLC, physicians may be less likely to order FoundationOne, case volume may decrease, and there may be a negative impact to revenue and results of operations.

Our future molecular information services and other services in various stages of early development, will take time to develop and commercialize, if we are able to commercialize them at all. There can be no assurance that our new services will be capable of reliably identifying relevant genomic alterations in various forms of cancer. Before we can commercialize any new services, we will need to expend significant funds in order to:

- conduct substantial research and development, including validation studies and potentially clinical trials;
- build additional laboratory space for new services;
- further develop and scale our laboratory processes to accommodate different services;
- further develop and scale our infrastructure to be able to analyze increasingly large amounts of data; and
- in the case of services for which we are seeking FDA approval, pursue such FDA approval.

Our services development process involves a high degree of risk, and services development efforts may fail for many reasons, including:

- failure of the service to perform as expected at the research or development stage;
- lack of validation data;
- failure to demonstrate the clinical utility of the service; or
- in the case of services for which we are seeking or have received FDA approval, the inability to obtain FDA approval or the loss of FDA approval.

As we develop services, we will have to make significant investments in services development, marketing, and selling resources. In addition, the commercialization of newer services, such as FoundationOne CDx, may negatively affect the sales of existing services or create confusion with existing services, such as FoundationOne, where the diagnostic applications overlap. Physicians may decide to order a newer service in lieu of an existing service or may be unsure as to which service to order.

If we cannot compete successfully with our competitors, including new entrants in the market, we may be unable to increase or sustain our revenue or achieve and sustain profitability.

While personalized genomic diagnostics is a relatively new area of science, we face intense competition from companies that offer tests or have conducted research to profile genes and gene expression in various cancers. Our principal competition comes from diagnostic companies that offer molecular diagnostic tests that capture only a single-marker or hotspot panel tests that capture a limited number of the most well-known gene alterations, as well as academic research centers, diagnostic companies and NGS platform developers that are offering or developing NGS-based testing. In addition, there are an increasing number of sophisticated commercial competitors who are selling hot-spot panel test or NGS-based tests that they are marketing as comparable to, and/or more cost effective than, our existing tests.

Our competitors include laboratory companies such as Bio-Reference Laboratories, Inc., Laboratory Corporation of America Holdings, Quest Diagnostics Incorporated, Caris Life Sciences, Guardant Health, NeoGenomics Laboratories, Genomic Health, Myriad Genetics, Personal Genome Diagnostics, Tempus, as well as laboratories outside the United States. In addition, companies such as Abbott Laboratories, Roche Diagnostics, Qiagen N.V., Nanostring Technologies, Sophia Genetics, and Sequenom manufacture or may manufacture diagnostic testing kits that are competitive with our tests or that may be viewed as substitutes for our tests by current or potential customers. There are also a significant number of early stage companies that may develop tests which compete with our tests. Recently, some of these competitors have been increasingly marketing their tests as comparable to, and/or more cost effective than, our tests, and if such marketing strategies are successful, they could result in physicians determining not to order our tests which, in turn, would have an adverse effect on our revenue, financial condition, and results of operations. As competition in our market increases, we may be subject to increased litigation risk, including in connection with our marketing practices and other promotional activities.

Many hospitals and academic medical centers may also seek to perform the type of molecular testing we perform at their own facilities. As such, our competition may include entities such as the MD Anderson Cancer Center, Memorial Sloan-Kettering Cancer Center, University of Michigan, Baylor Medical Genetics Laboratories, Washington University in St. Louis, University of Washington, Intermountain Healthcare, and other academic hospitals and research centers inside and outside the United States.

Illumina, Thermo Fisher Scientific, or Thermo Fisher, Qiagen N.V., and other companies market NGS platforms that are being sold directly to research centers, biopharmaceutical companies, and clinical laboratories. While these platforms have been largely utilized in research and development settings or testing for non-cancer conditions, many of these companies have launched and will likely continue to commercialize services for focused application in the clinical oncology market. We believe some diagnostic platform providers will seek to place sequencing machines in laboratories and to develop NGS-based LDTs for use in clinical oncology, including by seeking to decrease the cost, size, and complexity of their platforms. In addition, Illumina has received

approval by the FDA for an in vitro diagnostic kit for metastatic colorectal cancer and Thermo Fisher has received FDA approval for a multi-gene, in vitro diagnostic NGS-based assay for NSCLC. Both FDA-approved services can be used for clients who have purchased, respectively, Illumina's and Thermo Fisher's platforms. We believe other diagnostic platform providers may develop additional FDA-approved diagnostic kits for clinical use by clients who have purchased their platforms, potentially including kits designed to identify genetic alterations in samples of solid tumors or blood-based cancers. Also, many private companies are developing information technology-based tools to support the integration of NGS testing into the clinical setting. The successful development and marketing of these services by diagnostic platform providers could enable some of our potential customers to perform clinical-grade, comprehensive genomic analyses, which could have a material adverse effect on our business and financial condition. These companies may also use their patent portfolios, developed in connection with developing their tests, to allege that our services infringe their patents, and we could face litigation with respect to such allegations and the validity of such patents.

Because our proprietary molecular information platform consists largely of trade-secret protected technology and know-how and has only limited patent protection, new and existing companies inside and outside the United States could seek to develop molecular tests that compete with ours. These competitors could have technological, financial, and market access advantages that are not currently available to us and they could develop and commercialize competing services faster than we are able to do so. Additional competition, including price competition, could have a material adverse impact on our net revenues and profitability.

The molecular diagnostic industry is subject to rapidly changing technology, which could make our molecular information platform, our current molecular information services, and other services we develop obsolete.

Our industry is characterized by rapid technological changes, frequent new service introductions and enhancements, and evolving industry standards, all of which could make our molecular information platform and existing and future molecular information services obsolete. Our future success will depend on our ability to keep pace with the evolving needs of our customers on a timely and cost-effective basis and to pursue new market opportunities that develop as a result of technological and scientific advances. In recent years, there have been numerous advances in technologies relating to the diagnosis and treatment of cancer and advances in methods used to analyze very large amounts of genomic information. We must continuously enhance our molecular information platform and develop new services to keep pace with evolving standards of care. If we do not update our molecular information platform to reflect new scientific knowledge about cancer biology, information about new cancer therapies, or relevant clinical trials, our molecular information platform could become obsolete and sales of our existing and any new services could decline, which would have a material adverse effect on our business, financial condition, and results of operations.

If our services do not perform as expected, we may not be able to achieve widespread market adoption among physicians, which would cause our operating results, reputation, and business to suffer.

Our success depends on the market's confidence that we can provide reliable, high-quality molecular information services. There is no guarantee that the accuracy and reproducibility we have demonstrated to date will continue, particularly for clinical samples, as our test volume increases. We believe that our customers are likely to be particularly sensitive to service defects and errors, including if our services fail to detect genomic alterations with high accuracy from clinical specimens or if we fail to list, or inaccurately include, certain treatment options and available clinical trials in our test reports. As a result, the failure of our services to perform as expected would significantly impair our operating results and our reputation. We may also be subject to legal claims arising from any defects or errors.

We refer to the efficiency of our sequencing process as its yield. The sequencing process yields that we achieve depend on the design and operation of our sequencing process, which uses a number of complex and sophisticated biochemical, informatics, optical, and mechanical processes, many of which are highly sensitive to external factors. An operational or technological failure in one of these complex processes or fluctuations in external variables may

result in sequencing processing yields that are lower than we anticipate or that vary between sequencing runs. In addition, we are regularly evaluating and refining our sequencing process. These refinements may initially result in unanticipated issues that further reduce our sequencing process yields or increase the variability of our sequencing process yields. Low sequencing process yields, or higher than anticipated variability of our sequencing processing yields, increase total sequencing costs and reduce the number of samples we can sequence in a given time period, which can cause variability in our operating results and damage our reputation.

In addition, our test reports match identified genomic alterations with FDA-approved targeted therapies or relevant clinical trials of targeted therapies, and in the case of FoundationOne CDx, include relevant companion diagnostic claims. If a patient or physician who orders one of our services is unable to obtain, or be reimbursed for the use of, targeted therapies because they are not indicated in the FDA-approved label for treatment of a patient's cancer, the patient is unable to enroll in an identified clinical trial due to the enrollment criteria of the trial, or some other reason, the patient or ordering physician may conclude the test report does not contain actionable information. If physicians do not believe our services consistently generate actionable information about their patients' cancers, they may be less likely to order our services, our reputation could be harmed, and our business and results of operations could suffer. Furthermore, we have made significant investments in various technologies to support adoption of our molecular information services. For example, our test reports are available to physicians using an online customer-facing portal. We believe this online portal helps physicians to more efficiently use our clinical services and will enhance the utility of comprehensive genomic profiling. We also continue to build on our existing decision support applications and to develop innovative new decision support applications, like

FoundationSmartTrialsTM, that support informed treatment decision-making and enable improved access to therapies. If these technologies do not work as expected or fail to gain broad utilization among clinical physicians, they will not drive adoption of our molecular information services, which would have an adverse impact on our revenue and business operations.

If we lose the support of key thought leaders, it may be difficult to establish services enabled by our molecular information platform as a standard of care for patients with cancer, which may limit our revenue growth and ability to achieve profitability.

We have established relationships with leading oncology thought leaders at premier cancer institutions and oncology networks such as the Children's Hospital of Philadelphia Cancer Center, the Sylvester Comprehensive Cancer Center at the University of Miami, The Ohio State University Comprehensive Cancer Center - Arthur G. James Cancer Hospital and Richard J. Solove Research Institute, and the Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins University. If these key thought leaders determine that our molecular information platform, our existing services or other services that we develop are not clinically effective, that alternative technologies are more effective, or if they elect to use internally developed services, we could encounter significant difficulty validating our testing platform, driving adoption, or establishing our molecular information platform and tests as a standard of care, which would limit our revenue growth and our ability to achieve profitability.

If we cannot maintain our current relationships, or enter into new relationships, with biopharmaceutical companies, our development of services could be delayed or our revenue and results of operations could be adversely affected.

We deploy our molecular information platform to analyze tissue and blood samples provided by biopharmaceutical partners from their clinical trials. We have entered into agreements with biopharmaceutical companies in the cancer field including, Agios, Inc., Array BioPharma, AstraZeneca UK Limited, Clovis Oncology, Johnson & Johnson, Novartis Pharmaceuticals Corporation, Bristol-Myers Squibb Company, Pfizer Inc., and our broad collaboration with Roche.

For the year ended December 31, 2017, our collaboration with Roche accounted for more than 33% of our total revenue, representing a material portion of our total revenue. We expect that our collaboration with Roche will continue to account for a material portion of our revenue in future years. The revenue attributable to Roche may fluctuate in the future, which could have an adverse effect on our financial condition and results of operations. In addition, changes in the terms of our agreements with Roche, or a modification or termination of our relationship with Roche, could result in delays in the receipt of revenue by us, or a temporary or permanent loss of revenue to us. In addition, certain biopharmaceutical companies, including those with which we currently have agreements, may choose not to do business with us or may seek out other partners for molecular information due to our strategic collaboration with Roche and the fact that Roche is our largest stockholder and beneficially owns a majority of our outstanding stock, particularly if they are actual or potential competitors with Roche. If we are unable to continue to grow our business with biopharmaceutical companies, our business and results of operations would be adversely affected.

Our success in the future depends in part on our ability to maintain relationships and to enter into new relationships with biopharmaceutical partners. This can be difficult due to several factors, including internal and external constraints placed on these organizations that can limit the number and type of relationships with companies like us they can consider and consummate; that certain of our agreements governing our relationships are terminable at will by our biopharmaceutical partners; and that our biopharmaceutical partners may be dissatisfied with our services. Continued usage of our services by particular biopharmaceutical partners may also depend on whether the partner obtains positive data in its clinical trials, is able to successfully obtain regulatory approval and subsequently commercializes a therapy for which we have partnered with them to develop a companion diagnostic, or other administrative factors that are outside our control. Additionally, some of our biopharmaceutical partners have contracted with us to provide testing for large numbers of samples, which could strain our testing capacity and restrict our ability to perform tests for other customers. If we fail to maintain these relationships, or enter into new ones, our

business could suffer.

From time to time, we expect to engage in discussions with biopharmaceutical companies regarding commercial opportunities. There is no assurance that any of these discussions will result in a commercial agreement, or if an agreement is reached, that the resulting engagement will be successful or that any clinical trials conducted as part of the engagement will produce successful outcomes. Speculation in the industry about our existing or potential engagements with biopharmaceutical companies can be a catalyst for adverse speculation about us, our services, and our technology, which can result in harm to our reputation and our business.

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

We anticipate continued growth in our business operations both inside and outside the United States. Our laboratory facilities in North Carolina and Penzberg, Germany are operational, and we have executed agreements to expand our facilities in Cambridge, Massachusetts. This expansion and any future growth could create strain on our organizational, administrative, and operational infrastructure, including laboratory operations, quality control, customer service, and sales force management. We may not be able to maintain the quality or expected turnaround times of our services or satisfy customer demand as it grows. Our ability to manage our growth properly will require us to continue to improve our operational, financial, and managerial controls, as well as our reporting systems and procedures. We plan to implement new enterprise software systems in a number of areas affecting a broad range of business processes and functional areas. The time and resources required to implement these new systems is uncertain, and failure to complete implementation in a timely and efficient manner could adversely affect our operations.

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

Although we launched our first commercial service, FoundationOne, in June 2012, personalized genomic diagnostics is a new area of science, and we continue to focus and refine our efforts to sell, market, and receive reimbursement for our services. In addition, we have limited experience in marketing and selling some of our newer molecular information services, including FoundationOne CDx, which we expect to commercially launch in early 2018. We may not be able to market, sell, or distribute our existing services or other services we may develop effectively enough to support our planned growth.

Our future sales in the United States will depend in large part on our ability to develop, and substantially expand, our sales force and to increase the scope of our marketing efforts. Our target market of physicians is a large and diverse market. As a result, we believe it is necessary to develop a sales force that includes sales representatives with specific technical backgrounds. We will also need to attract and develop marketing personnel with industry expertise. Competition for such employees is intense. We may not be able to attract and retain personnel or be able to build an efficient and effective sales and marketing force, which could negatively impact sales and market acceptance of our services and limit our revenue growth and potential profitability.

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 services and to compete effectively will depend in part on our ability to manage this potential future growth effectively, without compromising quality.

Pursuant to our Ex-U.S. Commercialization Agreement with Roche, Roche has the exclusive right to commercialize FoundationOne, FoundationOneHeme, FoundationACT, FoundationOne CDx, any clinical diagnostic services developed under our R&D Collaboration Agreement with Roche, and any other services upon mutual agreement, outside of the United States to the extent Roche has not elected to exclude any countries from its territory. Subject to satisfaction of certain performance milestones, the Ex-U.S. Commercialization Agreement will remain in effect until April 2020 and may be extended by Roche for additional two-year periods. Roche has the right to terminate the agreement without cause upon six months' written notice after the initial five-year term, and either party may terminate the agreement in the event of breach by the other party. During the term of the Ex-U.S. Commercialization Agreement, we are relying on Roche's efforts to sell and market FoundationOne, FoundationOneHeme, FoundationACT, FoundationOne CDx, and potentially other future molecular information services outside of the United States, and if Roche's sales and marketing efforts are not successful, we may not achieve significant market acceptance of our services outside the United States, which would materially and adversely impact our business operations.

For any jurisdictions outside of the United States that Roche elects to exclude from its territory, if we believe a significant market opportunity for our services exists, we intend to enlist distribution partners and local laboratories to assist with sales, distribution, and customer support. We may not be successful in finding, attracting, and retaining distribution partners or laboratories, or we may not be able to enter into such arrangements on favorable terms. Sales practices utilized by our distribution partners that are locally acceptable may not comply with sales practices standards required under United States laws that apply to us, which could create additional compliance risk. If these additional sales and marketing efforts are not successful, we may not achieve significant market acceptance for our services in these markets, which could harm our business.

The loss or transition of any member of our senior management team or our inability to attract and retain highly skilled scientists, clinicians, and salespeople, or the diversion of management's attention due to the continued implementation of our collaboration with Roche, could adversely affect our business.

Our success depends on the skills, experience, and performance of key members of our senior management team. The individual and collective efforts of these employees will be important as we continue to develop our molecular information platform and additional services, and as we expand our commercial activities. The loss or incapacity of existing members of our senior management team could adversely affect our operations if we experience difficulties in hiring qualified successors.

In February 2017, Troy Cox succeeded Michael J. Pellini, M.D. as our Chief Executive Officer. In November 2017, Tom Civik began his employment with us as our new Chief Commercial Officer. In February 2018, Steven Kafka, Ph.D. resigned as our Chief Commercial Officer and President, and Konstantin Fiedler succeeded him as our Chief Operating Officer and Troy Cox was appointed to the additional position of President.

The complexity inherent in integrating a new key member of the senior management team with existing senior management may limit the effectiveness of any such successor or otherwise adversely affect our business. Leadership transitions can be inherently difficult to manage and may cause uncertainty or a disruption to our business or may increase the likelihood of turnover of other key officers and employees. Specifically, a leadership transition in the commercial team may cause uncertainty about or a disruption to our commercial organization, which may impact our ability to achieve sales and revenue targets.

All members of our senior management team have employment agreements; however, the existence of an employment agreement does not guarantee the retention of the employee for any period of time. We may make use of retention agreements to mitigate the risk of losing a member of our senior management at a time that would adversely affect key strategic initiatives or our operations as a whole, however, we cannot guarantee that the incentives provided under such retention agreement will be effective in

retaining the relevant member of senior management. 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 technicians. We may not be able to attract or retain qualified scientists and technicians in the future due to the intense competition for qualified personnel among life science businesses, particularly in Cambridge, Massachusetts, and potentially at our locations in North Carolina and Penzberg, Germany. We also face competition from universities and public and private research institutions in recruiting and retaining highly qualified scientific personnel. We may have difficulties locating, recruiting, or retaining qualified sales people. In addition, our obligation to repurchase shares of our common stock pursuant to Roche’s anti-dilution protections set forth in the Investor Rights Agreement may result in changes to our equity compensation programs, which could impact our ability to attract and retain key personnel. Recruitment 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.

The continued implementation of our broad strategic collaboration with Roche may also divert management’s focus and resources from other strategic opportunities and operational matters. In addition, this implementation could cause management and employee disruption, resulting in the possible loss of key management, sales and marketing, technical, or other personnel. If we experience any of these implementation-related issues, our business could be harmed.

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

The marketing, sale, and use of our services could lead to the filing of product liability claims were someone to allege that our services identified inaccurate or incomplete information regarding the genomic alterations of the tumor or malignancy analyzed, reported inaccurate or incomplete information concerning the available therapies for a certain type of cancer, 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 or professional liability claim could result in substantial damages and be costly and time-consuming for us to defend.

With respect to our FDA-approved tests, FoundationFocus CDx BRCA and FoundationOne CDx, product liability lawsuits may also be subject to additional defenses resulting from the fact that these tests are approved by the FDA under a premarket approval, or PMA, application. Product liability lawsuits that allege that state law requires that FoundationFocus CDx BRCA or FoundationOne CDx be designed, labeled, or manufactured in a different manner than was approved by the FDA may be preempted by the Federal Food, Drug, and Cosmetic Act, or the FDCA. However, we cannot predict whether a court would agree that such lawsuits should be preempted and defending such claims may be costly and time-consuming.

We maintain service and professional liability insurance, but this insurance may not fully protect us from the financial impact of defending against product liability or professional liability claims. Any product liability or professional 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 clinical or biopharmaceutical partners to terminate existing agreements and potential clinical or biopharmaceutical partners to seek other partners, any of which could impact our results of operations.

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

We depend on information technology and telecommunications systems for significant elements of our operations, including our laboratory information management system, our computational biology system, our knowledge

management system, our business intelligence system, our customer relationship management system, and our online customer-facing portals for reporting and research. We have installed and are expanding a number of enterprise software systems that affect a broad range of business processes and functional areas, including, for example, systems handling human resources, financial controls and reporting, contract management, regulatory compliance, and other infrastructure operations. In addition to the aforementioned business systems, we continue to extend the capabilities of both our preventative and detective security controls by augmenting the monitoring and alerting functions, the network design, and the automatic countermeasure operations of our technical systems. These information technology and telecommunications systems support a variety of functions, including laboratory operations, test validation, sample tracking, quality control, customer service support, billing and reimbursement, research and development activities, scientific and medical curation, and general administrative activities. In addition, our third-party billing and collections provider depends upon technology and telecommunications systems provided by outside vendors. Information technology and telecommunications systems are vulnerable to damage from a variety of sources, including telecommunications or network failures, malicious human acts, and natural disasters. Moreover, despite network security and back-up measures, some of our servers are potentially vulnerable to physical or electronic break-ins, malicious computer software (malware), and similar disruptive problems. Failures or significant downtime of our information technology or telecommunications systems, or those used by our third-party service providers, could prevent us from conducting our comprehensive genomic analyses, preparing and providing reports and data to pathologists and oncologists, billing payors, processing reimbursement appeals, handling patient or physician inquiries, conducting research and development activities, and managing the administrative aspects of our business. Any disruption or loss of information technology or telecommunications systems on which critical aspects of our operations depend could have an adverse effect on our business.

Security breaches, loss of data, and other disruptions could compromise sensitive information related to our business or prevent us from accessing critical information and expose us to liability, which could adversely affect our business and our reputation.

In the ordinary course of our business, we and our third-party billing and collections provider collect and store sensitive data, including legally protected health information, personally identifiable information, intellectual property, and proprietary business information owned or controlled by us or our customers, payors, and biopharmaceutical partners. We manage and maintain our applications and data utilizing a combination of on-site systems, managed data center systems, and cloud-based data center systems. We also communicate, and facilitate the exchange of, sensitive patient data to and between customers and their contracted or affiliated healthcare providers through online customer-facing portals. These applications and related data encompass a wide variety of business-critical information including research and development information, commercial information, and business and financial information. We face four primary risks relative to protecting this critical information, including: unauthorized access risk; inappropriate disclosure risk; inappropriate modification risk; and the risk of our being unable to adequately monitor our controls over the first three risks.

The secure processing, storage, maintenance, and transmission of this critical information is vital to our operations and business strategy, and we devote significant resources to protecting such information. Although we take measures to protect sensitive information from unauthorized access or disclosure, our information technology and infrastructure, and that of our third-party billing and collections provider, may be vulnerable to attacks by hackers or malicious software or breached due to personnel error, malfeasance, or other disruptions. Any such breach or interruption could compromise the security or integrity of our networks, and the information stored there could be accessed by unauthorized parties, publicly disclosed, corrupted, lost, or stolen. Any such access, disclosure, corruption, other loss, or theft of information could result in governmental investigations, class action legal claims or proceedings, liability under laws that protect the privacy of personal information, such as the Health Insurance Portability and Accountability Act, or HIPAA, and the Regulation (EU) 2016/679 of the European Parliament and of the Council of April 27, 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, also known as the General Data Protection Regulation, or GDPR, and regulatory penalties. Although we have implemented security measures and a formal, dedicated enterprise security program to prevent unauthorized access to patient data, applications such as our online customer-facing portals are currently accessible through public web portals and may, in the future, be accessible through dedicated mobile applications, and there is no guarantee we can absolutely protect our online portals or our mobile applications from breach. Unauthorized access to, or loss or dissemination of, the data embedded in or transferred via these applications could also disrupt our operations, including our ability to conduct our analyses, provide test results, bill payors or patients, process claims and appeals, provide customer assistance services, conduct research and development activities, collect, process, and prepare company financial information, provide information about our services and other patient and physician education and outreach efforts through our website, manage the administrative aspects of our business, and damage our reputation, any of which could adversely affect our business.

We are a “covered entity” as defined under HIPAA, and the United States Office of Civil Rights may impose penalties on a covered entity for a failure to comply with a requirement of HIPAA. Penalties will vary significantly depending on factors such as the date of the violation, whether the covered entity knew or should have known of the failure to comply, or whether the covered entity’s failure to comply was due to willful neglect. These penalties include civil monetary penalties of \$100 to \$50,000 per violation, up to an annual cap of \$1,500,000. A person who knowingly obtains or discloses individually identifiable health information in violation of HIPAA may face a criminal penalty of up to \$50,000 and imprisonment up to one year. The criminal penalties increase to \$100,000 and up to five years’ imprisonment if the wrongful conduct involves false pretenses, and to \$250,000 and up to 10 years’ imprisonment if the wrongful conduct involves the intent to sell, transfer, or use identifiable health information for commercial advantage, personal gain, or malicious harm. The United States Department of Justice is responsible for criminal prosecutions under HIPAA. Furthermore, in the event of a breach as defined by HIPAA, the covered entity has specific reporting requirements under HIPAA regulations. In the event of a significant breach, the reporting

requirements could include notification to the general public.

In addition, the interpretation and application of consumer, health-related, and data protection laws in the United States, Europe, and elsewhere are often uncertain, contradictory, and in flux. It is possible that these laws may be interpreted and applied in a manner that is inconsistent with our practices. If so, this could result in government-imposed fines or orders requiring that we change our practices, which could adversely affect our business. In addition, these privacy regulations may differ from country to country, and may vary based on whether testing is performed in the United States or in the local country. Our operations or business practices may not comply with these regulations in each country, and complying with these various laws could cause us to incur substantial costs or require us to change our business practices and compliance procedures in a manner adverse to our business.

Compliance with changing European privacy laws could require us to incur significant costs or experience significant business disruption, and failure to so comply could result in an adverse impact on our business.

In Europe, Directive 95/46/EC of the European Parliament and of the Council of October 24, 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, or the Directive, and Directive 2002/58/EC of the European Parliament and of the Council of July 12, 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (as amended by Directive 2009/136/EC), or the e-Privacy-Directive, have required European Union, or EU Member States to implement data protection laws to meet strict privacy requirements.

Violations of these requirements can result in administrative measures, including fines, or criminal sanctions.

Beginning on May 25, 2018, the Directive will be replaced by the Regulation (EU) 2016/679 of the European Parliament and of the Council of April 27, 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, also known as the GDPR. The GDPR imposes a broad range of strict requirements on companies subject to the GDPR, and applies to both companies located in the EU (and most likely the European Economic Area, or EEA) and – provided certain requirements are met – also companies located outside of the EU/EEA. The GDPR will impose additional obligations and risk upon our business and will increase substantially the penalties to which we could be subject in the event of any non-compliance, including fines of up to 10,000,000 Euros or up to 2% of the total worldwide annual turnover for certain comparatively minor offenses, or up to 20,000,000 Euros or up to 4% of the total worldwide annual turnover for more serious offenses. We may incur substantial expense in complying with the new obligations to be imposed by the GDPR and we may be required to make significant changes in our business operations, all of which may adversely affect our revenue and business overall. Given the expected new law in the field of data protection, we face uncertainty as to the exact interpretation of the new requirements and we may be unsuccessful in implementing all measures required by data protection authorities or courts in interpretation of the new law. In particular, national laws of Member States of the EU are in the process of being adapted to the requirements under the GDPR, thereby implementing national laws which may partially deviate from the GDPR and impose different obligations from country to country, so that we do not expect to operate in a uniform legal landscape in EU. Also, in the field of handling genetic data, the GDPR specifically allows national laws to impose additional and more specific requirements or restrictions, and European laws have historically differed quite substantially in this field, leading to additional uncertainty.

Among other requirements, both the Directive and the GDPR regulate transfers of personally identifiable data that is subject to the Directive or GDPR, or Personal Data, to countries outside the EU, such as the United States, that have not been found to provide adequate protection to such Personal Data by the European Commission. We have in the past relied upon adherence to the U.S. Department of Commerce's Safe Harbor Privacy Principles and compliance with the U.S.-EU and U.S.-Swiss Safe Harbor Frameworks as agreed to and set forth by the United States Department of Commerce, and the EU and Switzerland, which established a means for legitimating the transfer of Personal Data by data controllers in the EEA to the United States. As a result of the October 6, 2015 Court of Justice of the EU, or CJEU, opinion in Case C-362/14 (Schrems v. Data Protection Commissioner) regarding the adequacy of the U.S.-EU Safe Harbor Framework, the U.S.-EU Safe Harbor Framework is no longer deemed to be a valid method of compliance with requirements set forth in the Directive (and Member States' implementations thereof) regarding the transfer of Personal Data outside of the EEA.

In February 2016, negotiators from the EU and the United States reached political agreement on a successor to the U.S.-EU Safe Harbor framework that is being referred to as the EU-U.S. Privacy Shield and a draft adequacy decision was presented by the European Commission on February 29, 2016. On April 13, 2016, the Article 29 Working Party, a body made up of a representative from the data protection authority of each EU Member State, expressed "strong concerns" about the adequacy of the EU-U.S. Privacy Shield. In its opinion on the draft adequacy decision, the Article 29 Working Party noted that the framework does not incorporate some of the key principles of the EU data protection regime. Accordingly, the EU-US Privacy Shield was subject to further negotiations and revisions. On May 26, 2016 the European Parliament adopted a resolution and on July 8, 2016, the EU Member States' representatives approved the final version of the EU-U.S. Privacy Shield, paving the way for the adoption of the decision by the European Commission. On July 12, 2016, the United States Department of Commerce announced that the EU-U.S. Privacy Shield program would be open to registrants as of August 1, 2016. On January 12, 2017 the Swiss Government also announced the approval of the Swiss-U.S. Privacy Shield Framework as a valid legal mechanism to comply with Swiss requirements when transferring personal data from Switzerland to the United States. In April 2017, we completed the self-certification required under the EU-U.S. Privacy Shield and the Swiss-U.S. Privacy Shield.

However, there continues to be concerns about whether the EU-U.S. Privacy Shield and Swiss-U.S. Privacy Shield will face additional challenges and whether they will continue to be a valid transfer mechanism to legitimize transfers

from Europe or Switzerland, as applicable, to the United States. On September 15, 2016 a formal complaint was filed asking for an annulment of the EU-U.S. Privacy Shield framework by the CJEU. The outcome of this case is already unclear, as there are many variables (including procedural issues). In addition, the first joint annual review of the EU-U.S. Privacy Shield was carried out in October 2017 by officials from across the United States government, the European Commission, and EU data protection authorities. The report shows that the EU-U.S. Privacy Shield continues to ensure an adequate level of data protection but that there is room for improvement, and requires the European Commission draw up a list of recommendations on the functioning of the EU-U.S. Privacy Shield that need to be improved by the United States authorities. In addition, the Article 29 Working Party published its own report on the first annual review which was adopted on November 28, 2017, and in which they acknowledged the progress of the EU-U.S. Privacy Shield in comparison to the invalidated U.S.-EU Safe Harbor Framework but highlighted that they have identified a number of significant concerns and important unresolved issues that need to be addressed by both the EU Commission and the United States authorities at the latest at the time of the second joint review (which is expected in October 2018). In the event no remedy is brought regarding concerns in the given time frames, the members of the Article 29 Working Party have announced they will take appropriate actions, including bringing the EU-U.S. Privacy Shield adequacy decision to national courts for them to make a reference to the CJEU for a preliminary ruling.

If the EU-U.S. Privacy Shield framework is annulled or otherwise invalidated, we will need to reevaluate our options for ensuring adequate safeguards to enable the transfer of data to the United States in compliance with European data protection laws. We expect that for the immediate future, we will continue to face uncertainty as to whether our efforts to comply with our obligations under European privacy laws will be sufficient. If we are investigated by a European data protection authority, we may face fines and other penalties. Any such investigation or charges by European data protection authorities could have a negative effect on our existing business and on our ability to attract and retain new customers.

In light of the ECJ opinion in the Schrems case, and considering current challenges to the EU-U.S. Privacy Shield, we are undertaking efforts to conform transfers of Personal Data from the EEA based on current regulatory obligations, the guidance of data protection authorities, and evolving best practices. Despite these efforts, we may be unsuccessful in establishing conforming means of transferring such data from the EEA, including due to ongoing legislative activity, which may vary the current data protection landscape.

We may also experience hesitancy, reluctance, or refusal by European or multi-national customers to continue to use our services due to the potential risk exposure to such customers as a result of the ECJ ruling in the Schrems case and the current (and, in particular, future) data protection obligations imposed on them by certain data protection authorities in interpretation of current law and the future GDPR. Such customers may also view any alternative approaches to compliance as being too costly, too burdensome, too legally uncertain, or otherwise objectionable and therefore decide not to do business with us.

We and our customers are at risk of enforcement actions taken by certain EU data protection authorities until such point in time that we may be able to ensure that all transfers of Personal Data to us from the EEA are conducted in compliance with all applicable regulatory obligations, the guidance of data protection authorities, and evolving best practices. We may find it necessary to establish systems to maintain Personal Data originating from the EU in the EEA, which may involve substantial expense and may cause us to need to divert resources from other aspects of our business, all of which may adversely affect our business.

The e-Privacy Directive will likely be replaced in time by a new e-Privacy Regulation which may impose additional obligations and risk for our business. However, the draft e-Privacy Regulation is still in negotiations in the legislative procedure and it cannot yet be foreseen what the final law will look like and when it will enter into force.

We may acquire other businesses, form joint ventures, or make investments in other companies or technologies that could negatively affect our operating results, dilute our stockholders' ownership, increase our debt, or cause us to incur significant expense.

Our business strategy may, from time to time, include pursuing acquisitions of businesses and assets. We also may pursue strategic alliances and joint ventures that leverage our proprietary molecular information platform and industry experience to expand our offerings or distribution. We have no experience with acquiring other companies. Negotiating these transactions and the formation of strategic alliances or joint ventures can be time-consuming, difficult, and expensive, and our ability to execute and/or close these transactions may be subject to third-party approvals, including, in some cases, the approval of Roche pursuant to the terms of the Investor Rights Agreement or our credit facility with Roche, or the Roche Credit Facility, as well as governmental authorities, which are beyond our control. In addition, some third parties may choose not to enter into partnership arrangements with us because of our relationship with Roche. Consequently, we may not be able to complete such transactions on favorable terms or at all, and we can make no assurance that these transactions, once undertaken and announced, will close.

An acquisition or investment may result in unforeseen operating difficulties and expenditures, such as:

- We could experience difficulty in integrating businesses, services, personnel, operations, and financial and other controls and systems, and retaining key employees.

• We may assume by acquisition, joint venture, or strategic relationship unknown liabilities, known contingent liabilities that become realized, or known liabilities that prove greater than anticipated.

• We may have difficulty retaining the customers of any acquired business.

- We may incur debt, contingent liabilities, or future write-offs of intangible assets or goodwill, any of which could have a material adverse effect on our financial condition, results of operations, and cash flows.

• Integration of an acquired company may disrupt ongoing operations and require management resources that we would otherwise focus on developing our existing business, and as a result, we cannot be assured that the anticipated benefits of any acquisition, technology license, strategic alliance, or joint venture would be realized.

• We may have interests that diverge from those of our joint venture partners or other strategic partners and we may not be able to direct the management and operations of the joint venture or other strategic relationship in the manner we believe is most appropriate, thereby exposing us to additional risk.

These challenges related to acquisitions or investments could adversely affect our business, results of operations, and financial condition.

To finance any acquisitions or joint ventures, we may choose to issue shares of our common stock as consideration, which could dilute the ownership of our stockholders, if the issuance does not trigger our repurchase obligations under the Investor Rights Agreement, and could be subject to the prior consent of Roche, which might not be given.

Additional funds may not be available on terms that are favorable to us, or at all. If the price of our common stock is low or volatile, or if Roche does not provide consent for transactions requiring their approval, we may not be able to acquire other companies or fund a joint venture project using our stock as consideration.

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.

Our business strategy incorporates plans for significant international expansion through our collaboration with Roche. Pursuant to our Ex-U.S. Commercialization Agreement with Roche, in April 2016, Roche obtained the exclusive right to commercialize FoundationOne and FoundationOneHeme, in October 2017, the exclusive right to commercialize FoundationACT, and in February 2018, the exclusive right to commercialize FoundationOne CDx, in each case outside of the United States.

Additionally, if terms are agreed upon between us and Roche, Roche may obtain the exclusive right to commercialize any new clinical diagnostic services developed under the R&D Collaboration Agreement, or upon mutual agreement any of our other services, in each case outside of the United States to the extent Roche has not elected to exclude any countries from its territory. Our laboratory facility in Penzberg, Germany became operational in 2017, and our Ex-U.S. Commercialization Agreement also contemplates that we will provide additional laboratory space in Asia to perform genomic sequencing for FoundationOne, FoundationOneHeme, and FoundationACT. Subject to satisfaction of certain performance milestones, the Ex-U.S. Commercialization Agreement will remain in effect until April 2020 and may be extended by Roche for additional two-year periods. Roche has the right to terminate the agreement without cause upon six months' prior written notice after the initial five-year term, and either party may terminate the agreement in the event of breach by the other party. Since Roche has the exclusive right to commercialize FoundationOne, FoundationOneHeme, FoundationACT, Foundation CDx, and, if terms are agreed upon between us and Roche, any new clinical diagnostic services developed under the R&D Collaboration Agreement, our ability to achieve commercial success outside the United States, including growing test volume and revenue, obtaining coverage decisions from commercial and government payors, and developing and operating a sustainable international commercial infrastructure, relies to a significant extent on the performance of Roche.

Doing business internationally involves a number of risks, including:

- multiple, conflicting, and changing laws and regulations such as data protection laws, privacy regulations, tax laws, export and import restrictions, employment laws, regulatory requirements (including requirements related to patient consent, testing of genetic material and reporting the results of such testing) and other governmental approvals, permits, and licenses, or government delays in issuing such approvals, permits, and licenses;
- failure by us or Roche to obtain regulatory approvals for the manufacture, sale, and use of our services in various countries;
- transition and management of our former distribution relationships in various countries;
- additional, potentially relevant third-party intellectual property rights;
- complexities and difficulties in obtaining protection for and enforcing our intellectual property;
- difficulties in staffing and managing foreign operations;
- complexities associated with obtaining reimbursement from and managing multiple payor reimbursement regimes, government payors, or patient self-pay systems;
- logistics and regulations associated with preparing, shipping, importing and exporting tissue and blood samples, including infrastructure conditions, transportation delays, and customs;
- limits in our ability to penetrate international markets if we are not able to perform our molecular tests locally;
- financial risks, such as the impact of local and regional financial crises on demand and payment for our services, and exposure to foreign currency exchange rate fluctuations;

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 distribution activities that may fall within the purview of the United States Foreign Corrupt Practices Act, or FCPA, including 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 revenue and results of operations. The difference in regulations under United States law and the laws of foreign countries may be significant and, in order to comply with the laws of foreign countries, we may have to implement global changes to our services or business practices. Such changes may result in additional expense to us and either reduce or delay development of our services, commercialization or sales. In addition, any failure to comply with applicable legal and regulatory obligations could impact us in a variety of ways that include, but are not limited to, significant criminal, civil and administrative penalties, including imprisonment of

individuals, fines and penalties, denial of export privileges, seizure of shipments, and restrictions on certain business activities. Also, the failure to comply with applicable legal and regulatory obligations could result in the disruption of our activities in these countries.

Our international operations could be affected by changes in laws, trade regulations, labor and employment regulations, and procedures and actions affecting approval, services, pricing, reimbursement and marketing of our services, as well as by inter-governmental disputes. Any of these changes could adversely affect our business.

Our success internationally will depend, in part, on our ability to develop and implement policies and strategies that are effective in anticipating and managing these and other risks in the countries in which we do business. Failure to manage these and other risks may have a material adverse effect on our operations in any particular country and on our business as a whole.

We could be adversely affected by violations of the FCPA and other worldwide anti-bribery laws.

International customers have ordered, or may, in the future, order our services, and we are, therefore, subject to the FCPA, which prohibits companies and their intermediaries from making payments in violation of law to non-United States government officials for the purpose of obtaining or retaining business or securing any other improper advantage.

We use third-party collaborators, strategic partners, law firms, and other representatives for regulatory compliance, patent registration, and other purposes in a variety of countries, including those that are known to present a high corruption risk. Our reliance on Roche to sell our services internationally demands a high degree of vigilance in maintaining our policy against participation in corrupt activity because we can be held liable for the corrupt or other illegal activities of these third-party collaborators, our employees, representatives, contractors, partners, and agents, even if we do not explicitly authorize such activities. In addition, although we have implemented policies and procedures to ensure compliance with anti-corruption and related laws, there can be no assurance that all of our employees, representatives, contractors, partners, or agents will comply with these laws at all times. Other United States companies in the medical device and pharmaceutical 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 prohibits commercial bribery and makes it a crime for companies to fail to prevent bribery.

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, any changes in these laws, or the interpretation thereof. Noncompliance with these and other relevant laws could subject us to whistleblower complaints, investigations, sanctions, settlements, prosecution, other enforcement actions, disgorgement of profits, significant fines, damages, other civil and criminal penalties or injunctions, suspension and debarment from contracting with certain governments or other persons, the loss of export privileges, reputational harm, adverse media coverage, and other collateral consequences. If any subpoenas or investigations are launched, or governmental or other sanctions are imposed, or if we do not prevail in any possible civil or criminal litigation, our business, results of operations, and financial condition could be materially harmed. In addition, responding to any action will likely result in a materially significant diversion of management's attention and resources and significant defense costs and other professional fees. Enforcement actions and sanctions could further harm our business, results of operations, and financial condition.

Our employees, principal investigators, consultants, 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, principal investigators, consultants, and commercial partners. Misconduct by these parties could include intentional failures to comply with the regulations of

the FDA and non-United States regulatory authorities, comply with healthcare fraud and abuse laws and regulations in the United States and abroad, report financial information or data accurately, or disclose unauthorized activities to us. In particular, sales, marketing, and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, kickbacks, self-dealing, and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs, and other business arrangements. Such misconduct could also involve the improper use of information obtained in the course of clinical studies, which could result in regulatory sanctions and cause serious harm to our reputation. We currently have a code of conduct applicable to all of our employees, but it is not always possible to identify and deter employee misconduct, and our code of conduct and the 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 fines or other sanctions, 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 actions or investigations.

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

Our activities currently require the use of hazardous chemicals. We cannot eliminate the risk of accidental contamination or injury to employees or third parties from the use, storage, handling, or disposal of these materials. In the event of contamination or

injury, we could be held liable for any resulting damages, and any liability could exceed our resources or any applicable insurance coverage we may have. Additionally, we are subject on an ongoing basis to federal, state, and local laws and regulations governing the use, storage, handling, and disposal of these materials and specified waste services. The cost of compliance with these laws and regulations may become significant and could negatively affect our operating results.

Our income tax provision and other tax liabilities may be insufficient if taxing authorities are successful in asserting tax positions that are contrary to our position.

Significant judgment is required by us to determine our provision for income taxes and our liabilities for taxes. From time to time, we are reviewed or audited by various federal, state, local, and foreign authorities regarding income tax matters. Although we believe our judgment in determining the appropriate tax treatment is supportable and in accordance with relevant guidance, it is possible that the final tax authority may take a tax position that is different than that which is reflected in our income tax provision or different than the taxes we previously paid. Such differences could have a material adverse effect on our income tax provision or benefit or otherwise require the payment of additional taxes and, consequently, have a material adverse effect on our results of operations, financial position, and/or cash flows for such period.

Reimbursement and Regulatory Risks Relating to Our Business

If commercial third-party payors or government payors fail to provide coverage or adequate reimbursement, or if there is a decrease in the extent of coverage or amount of reimbursement for our existing services or any future services we develop, our revenue and prospects for profitability would be harmed.

Overview

In both domestic and many international markets, sales of our existing and any future services we develop will depend, in large part, upon the availability of adequate reimbursement from third-party payors. These third-party payors include government healthcare programs in various markets, such as Medicare and Medicaid in the United States, managed care providers, accountable care organizations, private health insurers, and other organizations. We believe that obtaining a positive Medicare LCD or NCD, and a favorable Medicare reimbursement rate, and obtaining the agreement of established commercial third-party payors to provide coverage and to pay, for each of our existing services, and any future services we develop, across substantially all medically indicated cancers will be a necessary element in achieving material commercial success. Physicians may not order our services unless commercial third-party payors and government payors authorize coverage and pay for all, or a substantial portion, of the rates established for our services.

Commercial third-party payors and government payors are increasingly attempting to contain healthcare costs by lowering reimbursement rates, limiting coverage of diagnostic services, and creating conditions of reimbursement, such as requiring participation in clinical evidence development involving research studies and the collection of physician decision impact and patient outcomes data. Certain commercial third-party payors may not agree to reimburse our existing services or future services if CMS or the Medicare administrative contractors, or MACs, assigned to the jurisdictions in which our operational laboratory facilities are located do not issue positive coverage decisions, and pay for, such services. As a result of these cost-containment trends, commercial third-party payors and government payors that currently provide, or in the future may provide, reimbursement for one or more of our services may reduce, suspend, revoke, or discontinue payments or coverage at any time, including those payors that designate one or more of our existing services and/or clinically indicated tumor types as experimental and investigational. Payors may also create conditions for coverage or may contract with third-party vendors to manage laboratory benefits, in both cases creating administrative hurdles for ordering physicians and patients that may make our services more difficult to sell. The percentage of submitted claims that are ultimately paid, the length of time to receive payment on claims, and the average reimbursement of those paid claims is likely to vary from period to period.

There is significant uncertainty surrounding whether the use of services that incorporate new technology, such as our portfolio of molecular information services, will be eligible for coverage by commercial third-party payors and government payors or, if eligible for coverage, what the reimbursement rates will be for these services. The fact that a diagnostic service has been approved for reimbursement in the past, has received FDA approval, or has obtained coverage for any particular indication or in any particular jurisdiction, does not guarantee that such diagnostic service will remain covered and/or reimbursed or that similar or additional diagnostic services and/or clinically indicated tumor types will be covered and/or reimbursed in the future. We have had claims for reimbursement denied by certain commercial third-party payors, in some cases because they have designated some or all of FoundationOne, FoundationOneHeme, and FoundationACT as experimental and investigational. Reimbursement of NGS-based cancer tests by commercial third-party payors and government payors may depend on a number of factors, including a payor's determination that our existing and future services are:

- not experimental or investigational;
- medically reasonable and necessary;
- appropriate for the specific patient;

- cost effective;
- supported by peer-reviewed publications;
- included in clinical practice guidelines and pathways; and
- supported by clinical utility and health economic studies demonstrating improved outcomes and cost effectiveness.

As a result, our efforts to pursue coverage on behalf of patients will take a substantial amount of time, and various commercial third-party payors and government payors may never cover or provide adequate payment for our existing and future services. Our strategy to achieve broad reimbursement and coverage is focused on demonstrating the clinical utility and economic benefits of our services, including engagement with key members of the oncology community and increasing physician demand, but there is no assurance that we will succeed in any of these areas or that, even if we do succeed, we will receive favorable coverage and reimbursement decisions. If adequate third-party coverage and reimbursement are unavailable, we may not be able to maintain volume and price levels sufficient to realize an appropriate return on investment in research and development. Furthermore, if a commercial third-party payor or government payor denies coverage and payment, it may be difficult for us to collect from the patient, and we may not be successful in doing so.

Government Payors

In the second quarter of 2016, the FDA and CMS accepted FoundationOne CDx for the Parallel Review program. The Parallel Review program provides concurrent review of a medical device by the FDA for marketing approval and by CMS for an NCD to facilitate patient access to innovative medical devices. In November 2017, the FDA approved FoundationOne CDx for detection of substitutions, insertion and deletion alterations, and copy number alterations in 324 genes and select gene rearrangements, as well as genomic signatures including microsatellite instability and tumor mutational burden, using DNA isolated from formalin-fixed paraffin embedded tumor tissue specimens.

FoundationOne CDx is intended as a companion diagnostic for patients with certain NSCLC, melanoma, colorectal cancer, ovarian cancer, or breast cancer to identify those patients who may benefit from treatment with one of 17 on-label targeted therapies in accordance with FDA-approved therapeutic product labeling. Additionally, FoundationOne CDx is intended to provide tumor mutation profiling to be used by qualified health care professionals in accordance with professional guidelines in oncology for cancer patients with solid malignant neoplasms.

Concurrent with FDA approval of FoundationOne CDx in November 2017, CMS issued a preliminary NCD that proposes nationwide Medicare coverage for FoundationOne CDx and other similar NGS tests for Medicare beneficiaries with advanced cancer (i.e., recurrent, metastatic, or advanced stage IV cancer), who have not been previously tested using the same NGS technology, and continue to seek further cancer therapy. Specifically, the preliminary NCD proposes full coverage of FoundationOne CDx for its FDA-approved companion diagnostic claims, as well as a pathway for additional coverage under CED in other solid tumor types. We cannot predict the Medicare reimbursement rate or whether the Medicare reimbursement rate established for this test will be favorable at the time of the initial rate determination or any time thereafter. If the Medicare reimbursement rate is unfavorable, we could experience a negative impact on revenue. Further, under the preliminary NCD, for NGS testing to qualify for coverage under CED, certain requirements must be met with respect to patient enrollment in a qualifying registry or clinical trial, and such requirements may be difficult to meet, and therefore coverage under CED may be unavailable or difficult to obtain, which may adversely affect reimbursement for FoundationOne CDx and negatively impact revenue.

The preliminary NCD proposes national coverage under Medicare for FoundationOne CDx and other FDA- approved NGS tests, and would apply to all local MACs and Medicare Advantage plans. If the preliminary NCD is finalized in its current form, the terms of the final NCD would apply, and the terms of an LCD would no longer apply, to FoundationOne CDx and other NGS tests offered as LDTs, such as FoundationOne. As a result, if the preliminary NCD is implemented in its current form, FoundationOne will be effectively non-covered by Medicare when provided to patients with advanced cancer, including NSCLC. Non-coverage of FoundationOne may cause the volume of FoundationOne orders to decrease, which may negatively impact revenue and results of operations.

For tests we may offer that are not subject to an NCD, local MACs that administer the Medicare program in various regions have discretion in determining coverage for tests, subject to Medicare rules. A MAC assigned to a jurisdiction in which we have an operational laboratory facility may deny a claim submitted by us related to that facility. Even if we do receive coverage from a MAC on appeal of a denied claim, the reimbursement rate may be lower than we expect if the service is not currently priced on the Medicare Clinical Laboratory Fee Schedule, or CLFS, and if such rate is then adopted by commercial third-party payors, it would have an adverse effect on our revenues and results of operations. In addition, a MAC may, insofar as such determination is not inconsistent with an NCD, issue an LCD for one or more of our existing or future services, and/or for one or more clinically indicated tumor types involved with such services that would apply to future claims. Although we would have the opportunity to submit additional materials in support of a positive LCD for our services to the MAC (or to CMS through the Office of Medicare Hearings and Appeals for claims-level appeals), there is no guarantee that the MAC will provide us with any additional positive LCDs or claims decisions, reverse any previously issued negative LCDs or claims decisions, or maintain any previously issued positive LCDs. In circumstances of non-coverage under an NCD or LCD, we may be required to obtain a signed advance beneficiary notice, or ABN, from Medicare patients in order to be paid directly by the patient for non-covered services.

If CMS issues a negative NCD, or a MAC assigned to the jurisdiction in which one of our operational laboratory facilities is located issues a negative LCD, with respect to one or more of our services and/or clinically indicated tumor types, or if CMS under an NCD or a MAC under an LCD establishes patient eligibility conditions, data collection obligations or other requirements that are difficult and/or costly to satisfy, or if a MAC denies reimbursement of one or more of these services in claims not covered by an NCD or LCD, our revenue and results of operations would be adversely affected because we may not be able to satisfy such requirements, our costs in meeting reimbursement requirements may increase, or we will not receive revenue or will receive decreased revenue for tests performed. Similarly, if CMS or a MAC withdraws or negatively changes its coverage policies after deciding to cover one or more of our services, our revenue and results of operations would be adversely affected. Physicians may be less likely to order a test for a patient if the test is not subject to a positive coverage determination such that the patient could ultimately be responsible for all or substantially all of the cost of the test. We may also be less likely to receive a positive coverage determination by commercial third-party payors insofar as Medicare identifies one or more of our tests as non-covered in an NCD or LCD.

Palmetto is the MAC for the jurisdiction in which our North Carolina laboratory is located. In May 2015, Palmetto published a final LCD, or the Palmetto LCD, which included reimbursement for comprehensive genomic profiles for highly validated testing in an initial subset of patients diagnosed with NSCLC. The Palmetto website listed FoundationOne as a covered test under this LCD effective October 1, 2015.

In September 2016, we began receiving test requisitions and samples from commercial customers at our North Carolina facility and performing components of FoundationOne and FoundationOneHeme testing at the facility. In accordance with CMS guidance, in January 2017, we began submitting an initial set of claims to Palmetto for FoundationOne test requisitions received in our North Carolina facility. We submitted these claims using miscellaneous Current Procedural Terminology, or CPT, codes with unique McKesson Z Code identifiers. On March 1, 2017, we received our first payments for claims under the Palmetto LCD. Payment for all claims processed to date by Palmetto has been made based upon the allowable rate of \$3,416 per test. Although we are performing components of our testing services for FoundationOneHeme in our North Carolina facility, Palmetto has not issued an LCD that covers FoundationOneHeme; therefore, we are providing ABNs to Medicare patients who receive FoundationOneHeme testing. We are still in the process of determining what other types of services we may conduct at this facility. Such determination will be subject to the existence and limitations of applicable licenses and approvals, our ability to meet laboratory and testing requirements, and our ability to accommodate logistical and commercial needs in the test ordering and fulfillment process.

In the preliminary NCD for FoundationOne CDx, however, CMS proposes to significantly limit coverage for FoundationOne (and other NGS-based tests offered as LDTs) to patients with advanced cancer whose testing is performed within the context of an NIH-NCI National Clinical Trial Network clinical trial. If the preliminary NCD is finalized in its current form, the terms of the final NCD would apply, and the terms of an LCD would no longer apply, so once the NCD is implemented, FoundationOne will be effectively non-covered by Medicare when provided to patients with advanced cancer, including NSCLC. Non-coverage of FoundationOne may cause the volume of FoundationOne orders to decrease, which may negatively impact revenue and results of operations.

In parallel, we have been engaged in conversations with Palmetto regarding the potential for coverage and payment by Palmetto for FoundationOne claims submitted by our North Carolina laboratory for Medicare patients having tumor types other than NSCLC, as well as coverage and payment for testing. In December 2016, Palmetto issued three draft LCDs for the use of comprehensive genomic profiling to guide treatment in patients with metastatic colorectal cancer, with metastatic melanoma, and with advanced primary peritoneal, fallopian tube and ovarian cancer. However, these draft LCDs may be delayed, may never be finalized, or if the LCDs are finalized, the coverage established by such LCDs may not result in payment for claims submitted by our North Carolina laboratory. There is no certainty that Palmetto will provide coverage for such Medicare patients, and if coverage is provided, that such coverage will result in payments for claims submitted by our North Carolina laboratory. We will also be required to obtain as part of the test order process an executed ABN form from Medicare patients for non-covered tumor types in order to bill

Medicare patients directly, which activity may have a negative impact on test utilization and our revenue and profitability.

Commercial Payors

We are currently considered an “out-of-network provider” by many commercial third-party payors because we have not entered into specific contracts to provide one or more of our existing services for their health plan beneficiaries, and as a result, patients may have higher out-of-pocket costs for our services and be subject to health plan requirements such as prior authorization. Physicians may be less likely to order our tests if patients have higher out-of-pocket costs or administrative hurdles, which would in turn have a negative effect on revenue and results of operations. If we were to become a contracted provider with additional commercial third-party payors in the future, the amount of overall reimbursement we receive may decrease if coverage is furnished for only a limited number of tumor types and/or we are reimbursed less money per test performed at a contracted rate than at a non-contracted rate, which could have a negative impact on our revenue. We may also be unable to collect patient out-of-pocket payments amounts directly from patients, and may experience lost revenue as a result. In addition, a payor’s decision to cover our services only in a specific tumor type such as NSCLC could also result in our inability to receive payment for other non-covered tumor types, resulting in lost volume and revenue. Finally, our contracts with current and any additional third-party payors will be subject to renewal, and the renewal process could result in lower reimbursement rates or elimination of reimbursement to us if the parties fail to agree to the terms of renewal and the contract is terminated.

Policy Considerations

The United States and foreign governments continue to propose and pass legislation designed to reduce the cost of healthcare. For example, in some foreign markets, the government controls the pricing of many healthcare services. We expect that there will continue to be federal and state proposals to implement governmental controls or impose healthcare requirements. In addition, the Medicare program and increasing emphasis on managed or accountable care in the United States will continue to put pressure on utilization and pricing. Utilization and cost control initiatives could decrease the volume of orders and payment that we would receive for any services in the future, which would limit our revenue and profitability.

Failure to comply with government laws and regulations related to submission of claims for our services could result in significant monetary damages and penalties and exclusion from the Medicare and Medicaid programs and corresponding foreign reimbursement programs.

We are subject to laws and regulations governing the submission of claims for payment for our services, such as those relating to coverage of our services under Medicare and other state, federal and foreign health care programs, the amounts that we may bill for our services, and the party to which we must submit claims. Our failure to comply with applicable laws and regulations could result in our inability to receive payment for our services or in attempts by state and federal healthcare programs, such as Medicare and Medicaid, to recover payments already made. Submission of claims in violation of these laws and regulations can result in recoupment of payments already received, substantial civil monetary penalties, and exclusion from state and federal health care programs, and can subject us to liability under the federal False Claims Act and similar laws. The failure to report and return an overpayment to the Medicare or Medicaid program within 60 days of identifying its existence can give rise to liability under the False Claims Act. Further, a government agency could attempt to hold us liable for causing the improper submission of claims by another entity for services that we performed if we were found to have knowingly participated in the arrangement at issue.

Changes in the way that the FDA regulates laboratory tests developed, manufactured, validated, and performed by laboratories like ours could result in additional expense in offering our current and any future services or even possibly delay or suspend development, manufacture, or commercialization of such services.

We market in vitro diagnostic medical devices, including FoundationOne CDx and FoundationFocus CDx BRCA, which are approved and regulated by the FDA as Class III medical devices and LDTs, such as FoundationOne, FoundationOneHeme, and FoundationACT. Each category is subject to different regulatory oversight, which presents different risk factors.

The FDA does not currently regulate most LDTs. Since the early 1990s, the FDA has taken the position that, although LDTs are medical devices, it would exercise enforcement discretion by not requiring compliance with the Federal Food, Drug, and Cosmetic Act, or the FDCA, or its regulations for LDTs. That remains the policy of the FDA today. However, FDA has taken certain actions in the past that, if renewed by the FDA, could result in a new regulatory approach for LDTs. In June 2010, the FDA announced that it no longer intended to exercise enforcement discretion for LDTs and in October 2014, the FDA published two draft guidance documents that, if finalized, would implement a regulatory approach for most LDTs. The draft guidance documents proposed to impose a risk-based, phased-in approach for LDTs similar to the existing framework for in vitro diagnostic devices. In November 2016, the FDA announced that it would not finalize the draft guidance documents for LDTs prior to the end of the Obama administration.

In January 2017, the FDA released a discussion paper synthesizing public comments on the 2014 draft guidance documents and outlining an updated possible approach to regulation of LDTs. Although the discussion paper has no

legal status and does not represent a final version of the LDT draft guidance documents, it proposes a risk-based framework that would require most LDTs to comply with most of the FDA's regulatory requirements for medical devices. Under the Trump administration, the FDA has not yet taken any regulatory action to regulate LDTs and has indicated that the FDA would support legislative action. We cannot predict whether the FDA will take action to regulate LDTs or what approach the FDA will seek to take.

Legislative proposals have been introduced in Congress or publicly circulated, each of which would implement differing approaches to the regulation of LDTs. In March 2017, a discussion draft of the Diagnostic Accuracy and Innovation Act, or DAIA, was circulated which, if enacted, would implement a regulatory scheme for all diagnostic tests, including both in vitro diagnostic devices and LDTs. Under DAIA, CMS would have jurisdiction over laboratory operations under an amended Clinical Laboratory Improvement Amendments Act, or CLIA, and FDA would regulate the design, development and validation of diagnostic tests under an amended FDCA. We cannot predict whether this bill or any other any other legislative proposal will be enacted into law or the impact such new legal requirements would have on our business.

In addition, in November 2013, the FDA finalized guidance regarding the sale and use of products labeled for research or investigational use only. Among other things, the guidance states that the FDA continues to be concerned about distribution of research- or investigational-use only products intended for clinical diagnostic use. The guidance states that the FDA will assess whether a manufacturer of such research- or investigational-use only products intends its products be used for clinical diagnostic purposes by examining the totality of circumstances, including advertising, instructions for clinical interpretation, presentations that describe clinical use, and specialized technical support such as assistance performing clinical validation, surrounding the distribution

of the product in question. The FDA has advised that if evidence demonstrates that a product is inappropriately labeled for research- or investigational-use only, the device could be deemed misbranded and adulterated within the meaning of the FDCA. Some of the reagents and other components we use in FoundationOne, FoundationOneHeme, and FoundationACT are currently labeled as research-use only products. If the FDA were to undertake enforcement actions, some of our suppliers may cease selling research-use only products to us, and any failure to obtain an acceptable substitute could significantly and adversely affect our business, financial condition and results of operations.

For tests that are subject to FDA regulation, we may not be able to obtain timely approvals for our tests or for modifications to our tests, which could delay or prevent us from commercializing our tests and harm our business.

If the FDA takes action to finalize and implement a regulatory system for LDTs, or if legislation is enacted that subjects LDTs to FDA regulation, we would need to comply with the FDA regulatory requirements for our LDTs, including FoundationOne, FoundationOneHeme, FoundationACT, or any future LDTs intended for clinical use. If the FDA takes action to regulate LDTs as devices, we believe that our LDTs would likely be regulated as either Class II or Class III devices.

We currently also market two companion diagnostic devices, FoundationFocus CDx BRCA and FoundationOne CDx, which are regulated by the FDA as Class III medical devices and are marketed under approved PMA applications.

If services that are currently marketed as LDTs become subject to FDA requirements for medical devices, including requirements for premarket clearance or approval, we may not be able to obtain such clearance or approvals on a timely basis, or at all. Our business could be negatively impacted if we are required to stop selling molecular information services pending their clearance or approval, or the launch of any new services that we develop could be delayed. Likewise, for tests that are regulated as medical devices, we may not be able to obtain clearance or approval of new devices or modifications to marketed devices on a timely basis, or at all, which could delay or prevent us from commercializing our tests and harm our business.

The cost of conducting clinical trials and otherwise developing data and information to support device PMA applications may be significant. In order to conduct a clinical investigation involving human subjects for the purpose of demonstrating the safety and effectiveness of a device, a sponsor of an investigation must, among other things, apply for and obtain institutional review board, or IRB, approval of the proposed investigation. In addition, if the clinical study involves a “significant risk” (as defined by the FDA) to human health, the sponsor of the investigation must also submit and obtain FDA approval of an investigational device exemption, or IDE, application. We or the applicable study sponsor, as applicable, may not be able to obtain FDA and/or IRB approval to undertake clinical trials in the United States for any new devices we intend to market in the United States. Further, if the IDE application is approved, there can be no assurance the FDA will determine that the data derived from the trials support the safety and effectiveness of the device or warrant the continuation of clinical trials. We must also comply with other FDA requirements for clinical trials related to informed consent, monitoring, record-keeping, reporting and the submission of information regarding certain clinical trials to a public database maintained by the NIH. Compliance with these requirements can require significant time and resources and if the FDA determines that we have not complied with such requirements, it may refuse to consider the data to support our applications or initiate enforcement actions. In addition, we, the FDA, or the IRB, may suspend a clinical trial at any time for various reasons, including a belief that the risks to study subjects outweigh the anticipated benefits.

A Class III medical device must be approved by the FDA under a PMA, prior to marketing the device. A PMA application must be supported by valid scientific evidence to demonstrate a reasonable assurance of safety and effectiveness of the subject device, typically including the results of human clinical trials that demonstrate the clinical validity of that test. A PMA application must also include information about the device and its components regarding, among other things, device design, manufacturing, and labeling. In addition to the time to develop the necessary supporting data, including to conduct clinical trials, the FDA review and approval process for a PMA application

generally takes a year or longer. Even if the FDA approves a PMA application, the FDA can impose post approval conditions that it believes necessary to ensure the safety and effectiveness of the device, including, among other things, restrictions on labeling, promotion, sale, and distribution.

In addition, we must submit and receive FDA approval of a PMA supplement for any modification to our PMA-approved tests that could affect the safety or effectiveness of the device. Modifications that may require a PMA supplement include: new indications for use, such as the addition of new companion diagnostic claims for new therapies to our FoundationOne CDx device; labeling changes; manufacturing changes; changes in the performance specifications for the device; and changes to the design of the device. We may be required to conduct additional clinical trials to support a PMA supplement for a modification to our device. The time for FDA review and approval of a supplement depends on the nature of the modification. FDA review and approval of a PMA supplements for significant changes to a device (such as a modified indication) generally takes six months to a year, but can take longer.

With the approval of FoundationOne CDx and other similar tumor profiling tests, the FDA announced a new approach to tumor profiling NGS tests. This approach would include three levels for reporting biomarkers: (1) companion diagnostic claims, (2) cancer mutations with evidence of clinical significance, such as clinical evidence in professional guidelines, and (3) cancer mutations with potential clinical significance, which may be informational or used to direct patients towards clinical trials. Following FDA review and authorization of a tumor profiling test, test developers can report additional level 2 or level 3 variants of the same type within

existing analytically validated genes without FDA approval of a PMA supplement. Test developers may also move mutations from level 3 to level 2 as evidence of clinical significance becomes recognized by the clinical community without an additional FDA submission. Additional level 1 companion diagnostic claims, however, will continue to require a PMA supplement as discussed above.

During the review of our PMA applications or PMA supplements, the FDA may indicate areas in which the FDA believes additional data or information is necessary to reach a decision on an application. We may need to expend significant time and resources in responding to such FDA requests, which could include performing additional testing or developing new data to support the PMA application. Depending on the nature of the requests, we may not be able to provide the data or information that the FDA believes necessary to resolve the deficiencies and obtain FDA approval of the PMA application or PMA supplement.

In addition, as part of its review of a PMA application, the FDA may conduct preapproval current good manufacturing practices inspections as well as a data integrity inspection pursuant to the FDA's Bioresearch Monitoring (BIMO) program and conduct preapproval inspections of our quality systems. During such inspections, FDA investigators may review the data and information supporting our PMA applications or may review the procedures and systems used to design or manufacture the device that is the subject of the PMA application. The FDA may indicate areas where additional data or information is necessary, or areas where corrective or preventive actions should be implemented. We may need to expend significant time and resources in responding to such FDA requests, and depending on the nature of the requests, we may not be able to provide the data or information or implement the actions that the FDA believes are necessary.

Class II medical devices must obtain FDA clearance of a premarket notification, or 510(k), prior to marketing, unless the FDA has exempted the device from this requirement. Under the 510(k) process, we must demonstrate that our test is substantially equivalent in technological characteristics and intended use to a legally-marketed predicate device. The FDA's review and clearance of a 510(k) usually takes from four to twelve months, but it can take longer. Any modifications to an FDA-cleared device that could significantly affect its safety or effectiveness or that would constitute a major change in its intended use would require a new 510(k) clearance or, if the modified device is not substantially equivalent, possibly a de novo classification request or a PMA.

If we are unable to identify an appropriate predicate that is substantially equivalent to our device, we would be required to submit a PMA application or a de novo reclassification request, because devices that have not been classified are automatically categorized as Class III. Under the de novo process, we may request that the FDA classify a new low or moderate risk device that lacks an appropriate predicate as a Class I or Class II device. The de novo process typically requires the development of clinical data and usually takes between six to twelve months from the time of submission of the de novo application, but can take longer.

For tests that are subject to FDA regulation, if we do not comply with FDA regulatory requirements, we may be subject to enforcement action, which could substantially harm our business.

After approval, devices subject to FDA regulation are required to comply with post-market requirements. Among the requirements, we and our suppliers must comply with the FDA's Quality System Regulations, or QSRs, which set forth requirements for the design and manufacture of devices, including the methods and documentation for the design, control testing, quality assurance, labeling, packaging, storage, and shipping of our devices. Our limited experience complying with these requirements may lead to operational challenges as we increase the scale of our QSR-compliant operations and develop and refine our policies and procedures for evaluating and mitigating issues we encounter with our processes. Further, if there are any modifications made to the manufacturing of our PMA-approved marketed services, a PMA supplement may be required to be submitted to, and approved by, the FDA before the modified device may be marketed.

Additionally, the FDA medical device reporting, or MDR, regulations require that manufacturers of medical devices report to FDA adverse events when they learn that their devices may have caused or contributed to a death or serious injury, and when they become aware that their device has malfunctioned and would be likely to cause or contribute to a death or serious injury if the malfunction were to recur. We may fail to report adverse events and malfunctions of which we become aware within the prescribed timeframe. We may also fail to recognize that we have become aware of a reportable event, especially if it is not reported to us as an adverse event or if the product characteristic that caused the adverse event is removed in time from our products.

The FDA has the authority to require the recall of our marketed devices if the FDA finds that there is a reasonable probability that the device would cause serious adverse health consequences or death. In addition, we may voluntarily initiate certain field actions, such as a correction or removal of our products. If a correction or removal is initiated to reduce a health risk posed by our device, or to remedy a violation of the FDCA caused by the device that may present a risk to health, the correction or removal must be reported to the FDA. If the FDA subsequently determines that a report was required for a correction or removal of our products that we did not believe required a report, we could be subject to enforcement actions. A government-mandated recall or voluntary field action by us could occur as a result of component failures, manufacturing errors, design or labeling defects, or other deficiencies and issues. Any recalls of our products or enforcement actions could divert managerial and financial resources and could have an adverse effect on our financial condition and results of operations.

Other post-market requirements include post-approval studies, establishment registration and device listing, and restrictions on advertising and promotion. These requirements could subject our business to further regulatory risks and costs.

The FDA enforces the post-market requirements of the FDCA through announced and unannounced inspections. Failure to comply with applicable regulatory requirements could require us to expend time and resources to respond to the FDA's observations and to implement corrective and preventive actions, as appropriate. If we cannot resolve such issues to the satisfaction of the FDA, we may be subject to enforcement actions, including untitled or warning letters, fines, injunctions, or civil or criminal penalties. In addition, we could be subject to a recall or seizure of current or future services, operating restrictions, a partial suspension, or a total shutdown of service. Any such enforcement action would have a material adverse effect on our business, financial condition, and operations.

Healthcare policy changes, including legislation reforming the United States healthcare system, may have a material adverse effect on our financial condition, results of operations, and cash flows.

Affordable Care Act

In March 2010, legislation collectively referred to as the Affordable Care Act, or ACA, was enacted in the United States. The ACA, as subsequently amended, made a number of substantial changes in the way healthcare is financed by both governmental and private insurers. Among other things, the ACA requires each medical device manufacturer and importer to pay an excise tax equal to 2.3% of the sale price for its taxable medical devices. In 2015, Congress imposed a two-year moratorium on this medical device tax, so that medical device sales during the period between January 1, 2016 and December 31, 2017 are exempt from the tax. In 2018, Congress extended the moratorium to medical device sales made during the period between January 1, 2018 and December 31, 2019. Absent further legislative action, the tax will be automatically reinstated for medical device sales starting on January 1, 2020. If the tax is reinstated, sales of our services that are regulated as medical devices, such as FoundationFocus CDx BRCA or FoundationOne CDx, would be subject to this tax.

On April 1, 2013, cuts to the federal budget were implemented, known as sequestration, resulting in a 2% annual cut in Medicare payments for all services, including clinical laboratory testing. Congress has since extended this 2% Medicare sequester through fiscal year 2025. At this time, it remains uncertain how long the cuts will be continued.

Many CPT procedure codes for molecular pathology tests that we use to bill our services were revised by the American Medical Association, or AMA, effective January 1, 2013. These new CPT codes were developed and implemented for individual genes, or the components of a multi-gene panel. In a final rule for calendar year 2013, CMS announced that it decided to keep the new molecular codes on the CLFS rather than move them to the Physician Fee Schedule. CMS then announced that for 2013, it would price the new codes using a "gap filling" process. Under this approach, CMS referred the CPT codes to the MACs to allow them to determine an appropriate price. CMS then calculated the median of the pricing provided by the MACs to establish and publish a National Limitation Amount, or NLA, by CPT code for 2014.

In 2014, the AMA approved and implemented new CPT codes for genomic sequencing-based panel tests in cancer, effective January 1, 2015. In 2015, CMS used a "gap filling" process to price some of these new codes, which involved referring the new codes to the MACs to allow them to determine and submit to CMS an appropriate price. For 2016, CMS established and published an NLA for some of these codes, including the code associated with testing for 5-50 genes as calculated by determining the median price as provided by the MACs for the applicable code. If CMS reduces reimbursement for the CPT codes for individual genes or fails to price favorably multi-gene panel codes upon which commercial payors may base rates, or if commercial payors who often base pricing on Medicare fee schedules reduce non-contracted payment rates below the NLA amounts for CPT codes corresponding to individual genes, mandate use of the sequencing-based panel CPT codes, or decide to stop payment on specific CPT codes altogether, our revenue could be adversely affected. For 2018, CMS established and published an NLA for the CPT code associated with testing for over 51 genes as calculated based on the weighted median of the payment rates for private payors for such code.

Protecting Access to Medicare Act

In April 2014 the Protecting Access to Medicare Act of 2014, or PAMA, was enacted into law. Section 216 of PAMA reforms the Medicare payment system for clinical laboratory tests paid through the CLFS. PAMA establishes a market-based payment system for Medicare payment for clinical diagnostic laboratory tests. Under this new methodology, CMS will establish Medicare payment for each test based on the weighted median of the private payor rates for the test. PAMA also creates a new class of test called the Advanced Diagnostic Laboratory Test, or ADLT, defined as a test offered and furnished only by a single laboratory that is not sold for use by a laboratory other than the original developing laboratory and is either a (1) multi-biomarker test of DNA, RNA or proteins with a unique algorithm yielding a single, patient-specific result, (2) test that is cleared or approved by the FDA, or (3) test meeting other similar criteria established by the United States Secretary of Health and Human Services.

PAMA requires certain clinical laboratories meeting a threshold of Medicare revenues to report private payor rates and corresponding test volumes. We did not meet this threshold during the January 1, 2016 to June 30, 2016 data collection period and therefore were not required to report this data in 2017, however, we anticipate that we will be required to report data during future reporting periods. In June 2016, CMS issued the Medicare Clinical Diagnostic Laboratory Tests Payment System Final Rule, or the Final Rule, to implement the laboratory test payment provisions of PAMA. As outlined in the Final Rule, CMS implemented the new payment system on January 1, 2018. CMS has issued sub-regulatory guidance on data collection and reporting and on additional

topics, including a list of specific billing codes for which laboratories must report data. CMS is expected to publish additional sub-regulatory guidance describing how PAMA will be implemented, including an application process for ADLTs. Once this guidance is published, it is possible FoundationOne CDx will not meet the requirements for classification as an ADLT or the requirements of the ADLT application process could create delays for us submitting or billing under PAMA. A delay in the issuance of this guidance or the occurrence of classification or application issues created by the guidance, could delay or materially change our approach to commercializing FoundationOne CDx and could negatively affect reimbursement and therefore revenue. Depending upon if and how commercial payors adopt, or are otherwise influenced by, this new Medicare pricing methodology and the payment rates, our average commercial payor rate for our tests, including FoundationOne CDx, could be adversely affected.

The Center for Medicare and Medicaid Innovation announced in June 2016 the launch of the Oncology Care Model, or OCM, beginning on July 1, 2016. The OCM is a five-year voluntary program that includes 192 physician practices in 32 states, as well as 14 private payors. Under the OCM, participating practices receive performance based payments on the basis of how their prices for 6-month “episodes” of cancer care triggered by receipt of chemotherapy compare to “benchmark” prices for similar episodes. These benchmarks are based on the historical data for the period of January 2012 through June 2015. The model may impact the utilization of our tests among those practices participating in OCM.

Medicare 14-Day Rule

Certain Medicare billing policy requirements for clinical laboratory tests impact our ability to bill Medicare directly, and under certain circumstances, requires us to bill and collect payments from hospitals for tests that we perform for inpatient or outpatient Medicare patients. Prior to January 1, 2018, under the so-called “14-Day Rule,” tests performed on specimens collected from hospital inpatients or outpatients, where those tests are ordered less than 14 days following the date of the patient's discharge from the hospital, could not be billed by us to Medicare directly; instead we had to bill the hospital for the test.

In November 2017, CMS finalized the 2018 Hospital Outpatient Prospective Payment System Final Rule, which allowed us to directly bill Medicare more frequently. Specifically, under the revised billing rules, a laboratory that performs molecular pathology tests on specimens collected during a hospital outpatient stay may bill Medicare directly for such tests if the test was performed following a hospital outpatient's discharge from the hospital outpatient department. To the extent these revisions to Medicare's billing policy permit us to bill Medicare directly for tests previously billed to hospitals under the 14-Day Rule, we will no longer bill hospitals for such tests. We continue to be subject to the 14-Day Rule, however, insofar as we perform tests on specimens collected during a hospital inpatient stay. Hospitals may assert that they are not required to pay these bills, or they may delay in paying these bills. In these cases, for hospitals who disclaim responsibility for our bills or delay payment of our bills under the 14-Day Rule, we may undertake collection activities, and as a result of such efforts, we may accept payments from hospitals that are less than the original invoice or we may be unable to collect from hospitals any payments at all.

Finally, the recent presidential and congressional elections in the U.S. could result in significant changes in, and uncertainty with respect to, legislation, regulation and government policy that could significantly impact our business and the healthcare industry. While it is not possible to predict whether and when any such changes will occur, a variety of initiatives to repeal or significantly reform key provisions of the ACA have been introduced in Congress or otherwise proposed. Most notably, Congress enacted legislation in 2017 that eliminates the ACA's “individual mandate” beginning in 2019, which may significantly impact the number of covered lives participating in exchange plans. Other potentially significant changes in policy include the possibility of modifications and elimination of programs and reductions in staffing at the FDA and CMS, and initiatives to contain or reduce governmental spending in the healthcare area, including Medicare and Medicaid reimbursement. We cannot predict what future healthcare initiatives will be introduced or implemented at the federal or state level, or how any future legislation or regulation may affect us. Any taxes imposed by federal legislation and the expansion of the government's role in the U.S. healthcare industry generally, as well as changes to the reimbursement amounts paid by payors for our existing and future services, may

reduce our profits and have a material adverse effect on our business, financial condition, results of operations, and cash flows.

If we fail to comply with the complex federal, state, local and foreign laws and regulations that apply to our business, we could suffer severe consequences that could materially and adversely affect our operating results and financial condition.

We are subject to CLIA, a federal law that regulates clinical laboratories that perform testing on specimens derived from humans for the purpose of providing information for the diagnosis, prevention, or treatment of disease. CLIA regulations mandate specific standards in the areas of personnel qualifications, administration, participation in proficiency testing, patient test management, quality control, quality assurance, and inspections. Our laboratory facilities located in the United States each have a current certificate of accreditation under CLIA to conduct our genomic analyses through our accreditation by the College of American Pathologists, or CAP. To renew these certificates, we are subject to survey and inspection every two years. Moreover, CLIA inspectors may make unannounced inspections of our clinical reference laboratories at any time.

Any sanction imposed under CLIA, its implementing regulations, or state or foreign laws or regulations governing licensure, or our failure to renew a CLIA certificate, a state or foreign license, or accreditation, could have a material adverse effect on our business. Most CLIA deficiencies are not classified as “condition-level” deficiencies, and there are no adverse effects upon the laboratory operations as long as the deficiencies are corrected. Remediation of these deficiencies are routine matters, with corrections

occurring within several hours or weeks. More serious CLIA deficiencies could rise to the level of “condition-level” deficiencies, and CMS has the authority to impose a wide range of sanctions, including revocation of the CLIA certification along with a bar on the ownership or operation of a CLIA certified laboratory by any owners or operators of the deficient laboratory. There is an administrative hearing procedure that can be pursued by the laboratory in the event of imposition of such sanctions, during which the sanctions are stayed, but the process can take a number of years to complete. If we were to lose our CLIA certification or CAP accreditation, we would not be able to operate our clinical laboratories and perform our molecular tests, which would result in material harm to our business and results of operations.

We are also required to maintain a license for our Massachusetts laboratory facility to perform testing in Massachusetts. Massachusetts laws establish standards for day-to-day operation of our clinical laboratory, including the training and skills required of personnel and quality control over and above that required by CLIA. We are also licensed to perform testing in our Massachusetts laboratory facility by the states of California, Pennsylvania, Maryland, Florida, Rhode Island, and New York, where we have received a permit from the New York State Department of Health to perform FoundationOne, FoundationOneHeme, and FoundationACT testing and deliver the related test report for specimens originating from New York.

Our North Carolina laboratory facility became commercially operational in September 2016 and currently conducts limited testing activities. We are currently working towards adding additional services that will be conducted at this facility in the future. We have obtained the necessary licensure for the activities currently performed at this facility and are in the process of obtaining additional licensure to allow for expansion of services provided, when required. If, after acquiring laboratory licenses for our Massachusetts and North Carolina facilities, we do not maintain these licenses or if our approvals are revoked, our business would suffer. In addition, other states may adopt similar licensure requirements in the future.

We will become subject to additional regulations in foreign jurisdictions as we and Roche expand international distribution of our services and seek to expand clinical laboratory operations outside the United States. International regulation may require prior review or approval of our services, may impose limits on the export of tissue, data or personal information necessary for us to perform our tests, and, as we establish laboratory operations outside the United States, may require us to obtain licenses and other operating permits. This additional regulation may affect our ability to provide our services and to conduct laboratory operations outside of the United States. If we are unable to comply with existing laws and regulations or changes to the laws and regulations, our business could be materially adversely affected.

We are also subject to the Health Insurance Portability and Accountability Act, or HIPAA, under which the Department of Health and Human Services established comprehensive federal standards with respect to the privacy and security of protected health information and requirements for the use of certain standardized electronic transactions; certain of our services, including our online customer-facing portals for reporting and research, are subject to these standards and requirements. Amendments to HIPAA under the Health Information Technology for Economic and Clinical Health Act, or the HITECH Act, and related regulatory amendments, which strengthen and expand HIPAA privacy and security standards, increase penalties for violators, extend enforcement authority to state attorneys general, and impose requirements for breach notification.

We furnish to biopharmaceutical partners and academic researchers genomic information that has been de-identified in accordance with HIPAA and relevant international health information privacy regulations. We may also furnish our biopharmaceutical partners and academic researchers with identifiable genomic information for research purposes, so long as such disclosure has been approved by an institutional review board or other ethical or privacy review board. The laws of certain states and countries may require specific consent from the individual either to retain or utilize certain genetic information for research or other purposes even if such information has been de-identified, or may require that we obtain a waiver of such consent from an ethical or privacy review board. Even where we furnish to biopharmaceutical partners and academic researchers genomic information that has been de-identified in accordance

with applicable laws and regulations, biopharmaceutical partners or academic researchers may use technology or other methods to link that de-identified genomic information to the patient from whom it was obtained in contravention of one or more applicable laws and regulations. Similarly, as we expand our decision support applications and offerings, such as FoundationSmartTrials, we may encounter greater regulatory risk, such as compliance with HIPAA and other regulations governing the use of protected health information and the promotion of FDA-approved drugs. A finding that we have failed to comply with any such laws and any remedial activities required to ensure compliance with such laws could cause us to incur substantial costs, to be subject to unfavorable publicity or public opinion, to change our business practices, or to limit the retention or use of genetic information in a manner that, individually or collectively, could be adverse to our business.

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

- FDA laws and regulations;

- the federal Anti-Kickback Statute, which prohibits knowingly and willfully offering, paying, soliciting, or receiving remuneration, directly or indirectly, in exchange for or to induce either the referral of an individual, or the furnishing, arranging for, or recommending of an item or service that is reimbursable, in whole or in part, by a federal healthcare program;

- the federal Stark physician self-referral law, which prohibits a physician from making a referral for certain designated

health services covered by a federal healthcare program, including laboratory and pathology services, if the physician or an immediate family member has a financial relationship with the entity providing the designated health services, unless the financial relationship falls within an applicable exception to the prohibition;

- the federal False Claims Act, which imposes liability on any person or entity that, among other things, knowingly presents, or causes to be presented, a false or fraudulent claim for payment to the federal government;
- the federal Civil Monetary Penalties Law, which prohibits, among other things, the offering or transfer of remuneration to a Medicare or other federal or state healthcare program beneficiary if the person knows or should know it is likely to influence the beneficiary's selection of a particular provider, practitioner, or supplier of services reimbursable by Medicare or other federal or state healthcare program, unless an exception applies;
- other federal and state fraud and abuse laws, such as anti-kickback laws, prohibitions on self-referral, fee-splitting restrictions, prohibitions on the provision of services at no or discounted cost to induce physician or patient adoption, and false claims acts, which may extend to services reimbursable by any third-party payor, including private insurers;
- the prohibition on reassignment of Medicare clinical laboratory claims, which, subject to certain exceptions, precludes the reassignment of such Medicare claims to any other party;
- the rules regarding billing for diagnostic tests reimbursable by the Medicare program, which in certain circumstances prohibit laboratories from charging the Medicare program directly for services provided to hospital inpatients and outpatients, and also prohibit a physician or other supplier from marking up the price of the technical component or professional component of certain diagnostic tests ordered by the physician or other supplier and supervised or performed by a physician who does not "share a practice" with the billing physician or supplier;
- state laws regulating genetic testing and protecting the privacy of genetic test results, as well as state laws protecting the privacy and security of health information and personal data and mandating reporting of breaches to affected individuals and state regulatory authorities;
- state laws that prohibit other specified practices, such as billing physicians for testing that they order; waiving coinsurance, copayments, deductibles, and other amounts owed by patients; and billing a state Medicaid program at a price that is higher than what is charged to one or more other payors;
- the federal Physician Payments Sunshine Act, which requires medical device manufactures to track and report to the federal government certain payments and other transfers of value made to physicians and teaching hospitals and ownership or investment interests held by physicians and their immediate family members;
- federal and state laws regulating lobbying activities, including the disclosure of payments made in connection with such activities; and
- similar foreign laws and regulations that apply to us in the countries in which we operate.

Our failure to comply could lead to civil or criminal penalties, exclusion from participation in government healthcare programs, or prohibitions or restrictions on our ability to conduct commercial activities. We believe that we are in material compliance with all statutory and regulatory requirements, but there is a risk that one or more government agencies could take a contrary position. These laws and regulations are complex and are subject to interpretation by the courts and by government agencies. If one or more such agencies allege that we may be in violation of any of these requirements, regardless of the outcome, it could damage our reputation and adversely affect important business relationships with third parties, including managed care organizations and other commercial third-party payors.

The FDA and other regulatory agencies strictly regulate the promotional claims that may be made about, and promotional activities related to, prescription services and medical devices. If we are found to have improperly promoted our services or devices, we may become subject to significant fines and other liabilities.

Our molecular information services include a report to physicians that describes the tested cancer's genomic alterations and, based on peer-reviewed literature and a government-sponsored list of clinical trials (clinicaltrials.gov), matches them with FDA-approved therapies or open clinical trials for therapies targeting cancers driven by those alterations. Our PMA-approved FoundationOne CDx device, in addition to companion diagnostic information, provides information that can be used for patient management according to professional guidelines and clinical trials. In some cases, the therapies identified in our report are not approved for the patient's cancer or disease state.

The FDA and other regulatory agencies strictly regulate the promotional claims that may be made about prescription drug and devices. In particular, a device may not be promoted for uses or indications beyond those contained in the device's approved labeling, or "off-label" uses. If the FDA determines that we have promoted our products for off-label use, it could request that we modify those promotional materials or take regulatory or enforcement actions, including the issuance of an untitled letter, warning letter, injunction, seizure, civil fine and criminal penalties. It is also possible that other federal, state or foreign enforcement authorities may take action if they consider our promotional or training materials to constitute promotion of an unapproved use. If not successfully defended, enforcement actions related to off-label promotion could result in significant fines or penalties. The U.S. government has levied large

civil and criminal fines against companies for alleged improper promotion and has entered into corporate integrity agreements and deferred prosecution agreements with companies that engaged in off-label promotion. The FDA has also requested that such companies enter into consent decrees and has taken other enforcement action. If the United States Department of Justice, or DOJ, or FDA determines that we have engaged in off-label promotion in our test reports by providing information regarding approved therapies, we may be subject to civil or criminal fines. Although our policy is to refrain from statements that could be considered off-label promotion of our products, the regulatory standards regarding off-label promotion are ambiguous, and the FDA or another regulatory agency could conclude that we have engaged in off-label promotion.

In addition to promoting our devices in a manner consistent with their approved indications, we must have adequate substantiation for the claims we make for our devices or services. If any of our claims are determined to be false, misleading or deceptive, our devices or services could be considered to be misbranded under the FDCA or to violate the Federal Trade Commission Act. We could also face lawsuits from our competitors under the Lanham Act alleging that our marketing materials are false or misleading. Such lawsuits, whether with or without merit, are typically time-consuming, costly to defend, and could harm our reputation.

Federal and state legislation regulate interactions between medical device manufacturers and healthcare professionals. We are subject to federal and state laws targeting fraud and abuse in healthcare, including anti-kickback laws, false claims laws, and other laws constraining or otherwise related to financial arrangements manufacturers may enter into with healthcare professionals. For example, the Physician Payments Sunshine Act requires device manufacturers to report and disclose payments or other transfers of value made to physicians and teaching hospitals. Violations of these laws can result in criminal or civil sanctions, including, fines, imprisonment, and exclusion from government programs such as Medicare and Medicaid, all of which could materially harm our business. We may also be required to comply with HIPAA and similar state laws.

In addition, incentives exist under applicable laws that encourage competitors, employees, and physicians to report violations of law governing promotional activities for pharmaceutical and device services. These incentives could lead to so-called whistleblower lawsuits as part of which such persons seek to collect a portion of monies allegedly overbilled to government agencies due to, for example, promotion of pharmaceutical or device services beyond labeled claims. These incentives could also lead to lawsuits that we have mischaracterized a competitor's service in the marketplace and, as a result, we could be sued for alleged damages to our competitors. Such lawsuits, whether with or without merit, are typically time-consuming and costly to defend. Such lawsuits may also result in related stockholder lawsuits, which are also costly to defend, or Congressional scrutiny.

Further, a federal law known as the Physician Payments Sunshine Act requires medical device manufacturers to track and report to the federal government certain payments and other transfers of value made to physicians and teaching hospitals and ownership or investment interests held by physicians and their immediate family members. Manufacturers must report data for the previous calendar year by the 90th day of the then-current calendar year. CMS then publishes the data on a publicly available website no later than June 30th. There are also state "sunshine" laws that require manufacturers to provide reports to state governments on pricing and marketing information. Several states have enacted legislation requiring medical device manufacturers to, among other things, establish marketing compliance programs, file periodic reports with the state, make periodic public disclosures on sales and marketing activities, and such laws may also prohibit or limit certain other sales and marketing practices. These laws may adversely affect our sales, marketing, and other activities by imposing administrative and compliance burdens on us. If we fail to track and report as required by these laws or to otherwise comply with these laws, we could be subject to the penalty provisions of the pertinent state and federal authorities.

We may be subject to fines, penalties, licensure requirements, or legal liability, if it is determined that through our test reports we are practicing medicine without a license.

Our test reports delivered to physicians provide information regarding FDA-approved therapies and clinical trials that oncologists may use in making treatment decisions for their patients. We make members of our organization available to discuss the information provided in the reports. State laws prohibit the practice of medicine without a license. Our customer service representatives and medical affairs team provide support to our customers, including assistance in interpreting the test report results. A governmental authority or individual actor could allege that the identification of available therapies and clinical trials in our reports and the related customer service we provide constitute the practice of medicine. A state may seek to have us discontinue the inclusion of certain aspects of our test reports or the related services we provide, or subject us to fines, penalties, or licensure requirements. Any determination that we are practicing medicine without a license may result in significant liability to us.

If the validity of an informed consent from a patient enrolled in a clinical trial with one of our biopharmaceutical partners was challenged, we could be forced to stop using some of our resources, which would hinder our molecular information service development efforts.

We provide services, including molecular testing, to our biopharmaceutical partners in connection with clinical trials. We have implemented measures to ensure that all clinical data and genetic and other biological samples that we receive in connection with clinical trials from our biopharmaceutical partners have been collected from subjects who have provided appropriate informed consent for purposes which extend to our service development activities. We seek to ensure that data and samples are provided to us on a subject de-identified manner.

We also act as a sponsor of clinical trials in connection with data analyses we perform, which are frequently conducted in collaboration with biopharmaceutical partners. We seek and receive approval from an ethical review board, or Institutional Review Board, for projects that meet the definition of “human subjects research,” which includes review and approval of processes for subject informed consent and authorization for use of personal information or waivers thereof.

In all our clinical trial-related activities, we also have measures in place to ensure that the subjects from whom the data and samples are collected do not retain or have conferred on them any proprietary or commercial rights to the data or any discoveries derived from them. Our biopharmaceutical partners conduct clinical trials in a number of different countries, and, to a large extent, and particularly when we are acting as a vendor in connection with a project sponsored by our biopharmaceutical partners, we rely upon them to comply with the subject’s informed consent and with applicable local laws and international regulations. The collection of data and samples in many different countries results in complex legal questions regarding the adequacy of informed consent and the status of genetic material under a large number of different legal systems. The subject’s informed consent obtained in any particular country could be challenged in the future, and those informed consents could prove invalid, unlawful, or otherwise inadequate for our purposes. Any findings against us, or our biopharmaceutical partners, could deny us access to or force us to stop using some of our clinical data or samples, which would hinder our molecular information service development efforts. We could become involved in legal challenges, which could consume our management and financial resources.

If we or our biopharmaceutical partners experience any of a number of possible unforeseen events in connection with clinical trials, our ability to conduct further clinical trials of, obtain regulatory approval of, or commercialize future services or improvements to existing services, could be delayed or prevented.

We or our biopharmaceutical partners may experience numerous unforeseen events during, or as a result of, clinical trials that could delay or prevent our ability to conduct further clinical trials or obtain regulatory approval of or commercialize future services or improvements to existing services. Unforeseen events that could delay or prevent our ability to conduct or support clinical trials, obtain regulatory approval of or commercialize future services, or improvements to existing services include:

- regulatory authorities or ethical review boards, including IRBs, may not authorize us, our investigators or our biopharmaceutical partners to commence a clinical trial or conduct a clinical trial at a prospective trial site;
- we may have delays in reaching or fail to reach agreement on acceptable clinical trial contracts or clinical trial protocols with prospective trial sites;
- clinical trials of our future services candidates, or improvements to our existing services, may produce negative or inconclusive results, and we may decide, or regulatory authorities may require us, to conduct additional clinical trials or abandon development programs of our services;
- the number of patients, or amount of data, required for clinical trials of our future service or services candidates, or improvements to our existing services, may be larger than we anticipate, patient enrollment in these clinical trials may be slower than we anticipate or patients may drop out of these clinical trials at a higher rate than we anticipate;
- our failure to conduct our clinical trials in accordance with applicable regulatory requirements of the FDA and of the regulatory authorities responsible for oversight of the conduct of clinical trials in other countries;
- we are unable to develop additional companion diagnostic tests or add additional companion diagnostic claims to existing tests, and/or obtain regulatory approval to market any such test on a timely basis, or at all;
- the therapeutic agents that we are developing companion diagnostic tests for may be associated with negative or inconclusive results in clinical trials, and our biopharmaceutical partners may decide to deprioritize or abandon these therapeutic agent programs, or regulatory authorities may require them to abandon these therapeutic agent programs or impose onerous changes or requirements, which could lead to de-prioritization or abandonment by the biopharmaceutical partner;
- clinical trials of our biopharmaceutical partners’ therapeutic agents that we are developing companion diagnostic tests for may suggest or demonstrate that these therapeutic agents are not as efficacious and/or as safe as other similar

therapeutic agents or a companion diagnostic test is not essential to determine which patients would benefit from these therapeutic agents;

- we may decide, or regulatory authorities or institutional review boards may require us, or our investigators, or our biopharmaceutical partners, to suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements;

- a finding that the patients are being exposed to unacceptable risks to their health or the privacy of their health information being disclosed associated with our future services candidates, or improvements to our existing services;

- the cost of clinical trials of future services candidates, or improvements to our existing services, may be greater than we anticipate;

- we may not have sufficient capacity in our laboratories to perform testing as requested or volumes or with the requested turnaround times; and

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the supply or quality of materials or data necessary to conduct clinical trials of future services candidates, or improvements to our existing services, may be insufficient or inadequate.

Ethical, legal, and social concerns related to the use of genomic information could reduce demand for our molecular information services.

Genomic testing, like that conducted using our molecular information platform and services, has raised ethical, legal, and social issues regarding privacy and the appropriate uses of the resulting information. Governmental authorities could, for social or other purposes, limit or regulate the use of genomic information or genomic testing or prohibit testing for genetic predisposition to certain conditions, particularly for those that have no known cure. Similarly, these concerns may lead patients to refuse to use genomic tests even if permissible.

Ethical and social concerns may also influence United States and foreign patent offices and courts with regard to patent protection for technology relevant to our business. These and other ethical, legal, and social concerns may limit market acceptance of our services or reduce the potential markets for services enabled by our molecular information platform, either of which could have an adverse effect on our business, financial condition, or results of operations.

Intellectual Property Risks Related to Our Business

Litigation or other proceedings or third-party claims of intellectual property infringement could require us to spend significant time and money and could prevent us from selling our services or impact our stock price.

Third parties have asserted and may in the future assert that we are employing their proprietary technology without authorization. As we continue to commercialize our molecular information services in their current or updated forms, launch new services, and enter new markets, we expect that competitors will claim that our services infringe their intellectual property rights as part of business strategies designed to impede our successful commercialization and entry into new markets. We occasionally receive letters from third parties inviting us to take licenses under, or alleging that we infringe, their patents, and, in some instances, have become involved in patent litigation. Third parties may have obtained, and may in the future obtain, patents under which such third parties may claim that the use of our technologies constitutes patent infringement.

We could incur substantial costs and divert the attention of our management and technical personnel in defending ourselves against claims of this nature. Any adverse ruling or perception of an adverse ruling in defending ourselves against such claims could have a material adverse impact on our cash position and stock price. Furthermore, parties making claims against us may be able to obtain injunctive or other relief, which could block our ability to develop, commercialize, and sell services, and could result in the award of substantial damages against us. In the event of a successful claim of infringement or misappropriation against us, we may be required to pay damages and obtain one or more licenses from third parties, or be prohibited from selling certain services, all of which could have a material adverse impact on our cash position and business and financial condition.

In addition, we may be unable to obtain these licenses at a reasonable cost, if at all. We could, therefore, incur substantial costs related to royalty payments for licenses obtained from third parties, which could negatively affect our gross margins. Moreover, we could encounter delays in introducing new services while we attempt to develop alternative methods or services. Defense of any lawsuit or failure to obtain any of these licenses on favorable terms could prevent us from commercializing services, and the prohibition of sale of any of our services would materially affect our ability to grow and maintain profitability and have a material adverse impact on our business.

Developments in patent law could have a negative impact on our business.

From time to time, the United States Supreme Court, or the Supreme Court, other federal courts, the United States Congress, or the United States Patent and Trademark Office, or the USPTO, may change the standards of patentability and any such changes could have a negative impact on our business.

Diagnostic method claims and “gene patents” were considered in two landmark Supreme Court cases, *Mayo Collaborative v. Prometheus Laboratories, Inc.* or *Prometheus*, and *Association for Molecular Pathology v. Myriad Genetics, Inc.* or *Myriad*. In *Prometheus*, a case involving patent claims directed to optimizing the amount of drug administered to a specific patient, *Prometheus*’ claims failed to incorporate sufficient inventive content above and beyond mere underlying natural correlations to allow the claimed processes to qualify as patent-eligible processes that apply natural laws. In *Myriad*, a case brought by multiple plaintiffs challenging the validity of patent claims held by *Myriad Genetics, Inc.* relating to the breast cancer susceptibility genes *BRCA1* and *BRCA2*, the court held that isolated genomic DNA that exists in nature, such as the DNA constituting the *BRCA1* and *BRCA2* genes, is not patentable subject matter, but that cDNA, which is an artificial construct created from RNA transcripts of genes, may be patent eligible. The Federal Circuit has begun to apply the holdings in *Prometheus* and *Myriad*. In 2015, the Federal Circuit, in *Ariosa v. Sequenom*, applying *Prometheus*, found claims to a prenatal diagnostic method that relied on a natural product to be patent ineligible, and clarified that the absence of preemption of a natural phenomenon was not sufficient to demonstrate patent eligibility. In 2016, the Federal Circuit, in *Rapid Litigation Management v. CellzDirect*, found claims to a method of preserving liver cells to be patent-eligible.

In response to the Supreme Court decisions in *Prometheus*, *Myriad*, and *Alice Corporation Pty. Ltd. V. CLS Bank International*, or *Alice Corp.*, and others, the USPTO has updated the Manual of Patent Examination Procedure (MPEP) to provide guidance to USPTO personnel in examining patent claims reciting judicially recognized exceptions to patentable subject matter, including laws of nature, natural phenomena, or abstract ideas, for patent eligibility. The USPTO guidance indicates that claims reciting a judicial exception to patent-eligible subject matter must amount to significantly more than the judicial exception itself in order to be patent-eligible subject matter. We cannot assure you that our efforts to seek patent protection for our technology and services will not be negatively impacted by this interim guidance issued by the USPTO, the decisions described above, rulings in other cases, or changes in guidance or procedures issued by the USPTO.

We cannot fully predict what impact the Supreme Court's decisions in *Prometheus*, *Myriad*, *Alice Corp.*, and other decisions may have on the ability of biopharmaceutical companies or other entities to obtain or enforce patents relating to DNA, genes, or genomic-related discoveries in the future. Despite the USPTO interim guidance and Federal Circuit cases described above, the contours of when claims reciting laws of nature, natural phenomena, or abstract ideas may meet the patent eligibility requirements are not clear and may take years to develop via interpretation at the USPTO and in the courts. There are many previously issued patents claiming nucleic acids and diagnostic methods based on natural correlations that issued before the recent Supreme Court decisions discussed, and although many of these patents may be invalid under the standards set forth in the Supreme Court's recent decisions, until successfully challenged, these patents are presumed valid and enforceable, and certain third parties could allege that we infringe, or request that we obtain a license to, these patents. Whether based on patents issued prior to or after these Supreme Court decisions, we could have to defend ourselves against claims of patent infringement, or choose to license rights, if available, under patents claiming such methods. In particular, although the Supreme Court has held in *Myriad* that isolated genomic DNA is not patent-eligible subject matter, certain third parties could allege that activities that we may undertake infringe other classes of gene-related patent claims, and we could have to defend ourselves against these claims by asserting non-infringement and/or invalidity positions, or pay to obtain a license to these claims. In any of the foregoing or in other situations involving third-party intellectual property rights, if we are unsuccessful in defending against claims of patent infringement, we could be forced to pay damages or be subjected to an injunction that would prevent us from utilizing the patented subject matter in question if we are unable to obtain a license on reasonable terms. Such outcomes could materially affect our ability to offer our services and have a material adverse impact on our business. Even if we are able to obtain a license or successfully defend against claims of patent infringement, the cost and distraction associated with the defense or settlement of these claims could have a material adverse impact on our business.

We may be unable to protect or enforce our intellectual property effectively, which could harm our competitive position.

Obtaining and maintaining a strong patent position is important to our business. A number of our patent applications are in the early stages of prosecution. Patent law relating to the scope of claims in the technology fields in which we operate is complex and uncertain, so we cannot be assured that we will be able to obtain or maintain patent rights, or that the patent rights we may obtain will be valuable, provide an effective barrier to competitors or otherwise provide competitive advantages. Others have filed, and in the future are likely to file, patent applications that are similar or identical to ours or those of our licensors. To determine the priority of inventions, or demonstrate that we did not derive our invention from another individual or entity, we may have to participate in interference or derivation proceedings in the USPTO or in court that could result in substantial costs in legal fees and could substantially affect the scope of our patent protection. We cannot be assured our patent applications will prevail over those filed by others. Also, our intellectual property rights may be subject to other challenges by third parties. Patents we obtain could be challenged in litigation or in administrative proceedings such as *ex parte* reexam, *inter partes* review, or post-grant review in the United States or opposition proceedings in Europe or other jurisdictions.

Obtaining and maintaining a patent portfolio entails significant expense and resources. Part of the expense includes periodic maintenance fees, renewal fees, annuity fees, various other governmental fees on patents and/or applications

due in several stages over the lifetime of patents and/or applications, as well as the cost associated with complying with numerous procedural provisions during the patent application process. We may or may not choose to pursue or maintain protection for particular inventions. In addition, there are situations in which failure to make certain payments or noncompliance with certain requirements in the patent process can result in abandonment or lapse of a patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. If we choose to forego patent protection or allow a patent application or patent to lapse purposefully or inadvertently, our competitive position could suffer.

Legal actions to enforce our patent rights can be expensive and may involve the diversion of significant management time. In addition, these legal actions could be unsuccessful and could also result in the invalidation of our patents, a narrow construction of the scope of our patents, or a finding that they are unenforceable. We may or may not choose to pursue litigation or interferences against those that have infringed our patents, due to the associated expense and time commitment of monitoring these activities. If we fail to protect or to enforce our intellectual property rights successfully, our competitive position could suffer, which could harm our results of operations.

If we are unable to protect the confidentiality of our trade secrets, know-how, and other confidential and proprietary information, our business and competitive position would be harmed.

In addition to patent protection, we also rely upon copyright and trade secret protection, as well as non-disclosure agreements and invention assignment agreements with our employees, consultants and third parties, to protect our confidential and proprietary information. For example, significant elements of some of our tests, including aspects of sample preparation, computational-biological algorithms, and related processes and software, are based on unpatented trade secrets and know-how that are not publicly disclosed. In addition to contractual measures, we try to protect the confidential nature of our proprietary information using physical and technological security measures. Such measures may not, for example, in the case of misappropriation of intellectual rights by an employee, consultant, or third party with authorized access, provide adequate protection for our proprietary information. Our security measures may not prevent an employee, consultant, or third party from misappropriating our trade secrets and providing them to a competitor, and recourse we take against such misconduct may not provide an adequate remedy to protect our interests fully. Enforcing a claim that a party illegally disclosed or misappropriated intellectual property can be difficult, expensive, and time-consuming, and the outcome is unpredictable. Due to variation in the degree of protection afforded to intellectual property of this nature under the laws and regulations applicable to different international markets where our services are sold under our Ex-U.S. Commercialization Agreement with Roche, our ability to pursue and obtain an adequate remedy may depend significantly on the jurisdiction in which the misconduct takes place and our ability to enforce a favorable judgment against the offending party in a jurisdiction in which such party has substantial assets. In addition, trade secrets may be independently developed by others in a manner that could prevent legal recourse by us. If any of our confidential or proprietary information, such as our trade secrets, were to be disclosed or misappropriated, or if any such information were independently developed by a competitor, our competitive position could be harmed.

We may not be able to enforce our intellectual property rights throughout the world.

Many companies have encountered significant problems in protecting and defending intellectual property rights in certain foreign jurisdictions. Accordingly, we may face an increased risk in these jurisdictions that unauthorized parties may attempt to copy or otherwise obtain or use our trademarks, copyrights, formulations or other intellectual property. The laws of some foreign countries do not protect intellectual property rights to the same extent as the laws of the United States. Specifically, the legal systems of some countries, particularly developing countries, do not favor the enforcement of patents and other intellectual property protection, especially those relating to biotechnology. This could make it difficult for us to stop the infringement of our patents, if obtained, or the misappropriation of our other intellectual property rights. For example, many foreign countries have compulsory licensing laws under which a patent owner must grant licenses to third parties. In addition, many countries limit the enforceability of patents against third parties, including government agencies or government contractors. In these countries, patents may provide limited or no benefit. Patent protection must ultimately be sought on a country-by-country basis, which is an expensive and time-consuming process with uncertain outcomes. Accordingly, we may choose not to seek patent protection in certain countries, and we will not have the benefit of patent protection in such countries.

Monitoring infringement and misappropriation of intellectual property can be difficult and expensive, and we may not be able to detect every instance of infringement or misappropriation of our proprietary rights. Even if we do detect infringement or misappropriation of our proprietary rights, proceedings to enforce our intellectual property rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business. Accordingly, our efforts to protect our intellectual property rights in such countries may be inadequate. 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 technology and the enforcement of intellectual property.

Third parties may assert ownership or commercial rights to inventions we develop.

Third parties may in the future make claims challenging the inventorship or ownership of our intellectual property. For example, we rely on certain third parties to provide us with tissue samples and biological materials that we use to conduct our genomic analyses. We have written agreements with collaborators that provide for the ownership of intellectual property arising from our collaborations. These agreements provide that we must negotiate certain

commercial rights with collaborators with respect to joint inventions or inventions made by our collaborators that arise from the results of the collaboration. In some instances, there may not be adequate written provisions to address clearly the resolution of intellectual property rights that may arise from a collaboration. If we cannot successfully negotiate sufficient ownership and commercial rights to the inventions that result from our use of a third-party collaborator's materials where required, or if disputes otherwise arise with respect to the intellectual property developed with the use of a collaborator's samples, we may be limited in our ability to capitalize on the market potential of these inventions. In addition, we may face claims that our agreements with employees, contractors, or consultants obligating them to assign intellectual property to us are ineffective, or in conflict with prior or competing contractual obligations of assignment, which could result in ownership disputes regarding intellectual property we have developed or will develop and interfere with our ability to capture the commercial value of such inventions. Litigation may be necessary to resolve an ownership dispute, and if we are not successful, we may be precluded from using certain intellectual property, or may lose our exclusive rights in that intellectual property. Either outcome could have an adverse impact on our business.

Third parties may assert that our employees or consultants have wrongfully used or disclosed confidential information or misappropriated trade secrets.

We employ individuals who were previously employed at universities or other diagnostic or biopharmaceutical companies, including our competitors or potential competitors. Although we try to ensure that our employees and consultants do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise used or disclosed intellectual property, including trade secrets or other proprietary information, of a former employer or other third parties. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. 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.

Risks Related to Our Relationship with Roche

We may not fully realize the anticipated benefits of our broad strategic collaboration with Roche or realize them in the expected time frame.

Implementation of the collaboration agreements, the Roche Credit Facility, and related corporate governance agreements with Roche may result in material unanticipated problems, expenses, liabilities, competitive responses, loss of customer relationships, and diversion of management's attention, including, among others:

- difficulties in achieving anticipated business objectives, opportunities and growth prospects;
- difficulties in managing the expanded operations of a more complex company;
- challenges related to adhering to our obligations to repurchase shares pursuant to Roche's anti-dilution protections contained in the Investor Rights Agreement;
- our ability to comply with the covenants set forth in the Roche Credit Facility;
- difficulties in maintaining our independence, and the perception of our independence, due to Roche's beneficial ownership of our stock, the broad strategic collaboration, the Roche Credit Facility and as a result of our employing individuals who were previously employed by Roche, including our recent appointment of Troy Cox as Chief Executive Officer, who previously worked for Genentech, a wholly-owned subsidiary of Roche;
- challenges resulting from increased complexities in accounting and tax matters related to our obligations under the Investor Rights Agreement and Tax Sharing Agreement by and between us and Roche, dated January 11, 2015, or the Tax Sharing Agreement, including our compliance with certain financial, accounting and tax reporting obligations, practices and procedures;
- challenges in keeping existing customers and obtaining new customers, including any biopharmaceutical customers that are actual or potential competitors with Roche;
- challenges in our relationships with collaboration partners, suppliers, and patients; and
- challenges in attracting and retaining key personnel that may arise from working in a more complex company or due to changes in our equity incentive program that we adopted to maintain Roche's percentage ownership interest pursuant to our obligations under the Investor Rights Agreement.

Many of these factors will be outside of our control, and any one of them could result in increased costs, decreases in the amount of expected revenues and diversion of management's time and energy, which could materially impact our business, financial condition and results of operations. In addition, even if the full benefits of our relationship with Roche are realized, including the sales and growth opportunities that are expected, these benefits may not be achieved within the anticipated time frame and additional unanticipated costs may be incurred in connection with the relationship. All of these factors could negatively impact the price of our common stock. As a result, we cannot assure you that our relationship with Roche will result in the realization of the anticipated benefits.

As long as Roche owns greater than a majority of our outstanding shares of common stock, other holders of our common stock may have limited ability to affect the outcome of certain matters requiring stockholder approval and Roche's interest may conflict with ours and other stockholders'.

As of December 31, 2017, Roche owned approximately 57.5% of our outstanding common stock. As a result, until such time as Roche holds shares representing less, and potentially a material portion less, than a majority of the votes entitled to be cast by the holders of our outstanding common stock at a stockholder meeting, Roche generally will have the ability to control the outcome of any matter submitted for the vote of our stockholders, except in certain circumstances set forth in our certificate of incorporation, bylaws and the Investor Rights Agreement.

The interests of Roche may not coincide with the interests of our other stockholders. Roche's ability, subject to the limitations in our certificate of incorporation, bylaws and the Investor Rights Agreement, to control all matters submitted to our stockholders for approval limits the ability of other stockholders to influence corporate matters and, as a result, we may take actions that our minority stockholders do not view as beneficial. As a result, the market price of our common stock could be adversely affected.

In addition, the existence of a majority stockholder could discourage third parties from acquiring us since the third party would be required to negotiate any such transaction with Roche, and the interests of Roche with respect to such transaction may be different from the interests of our other stockholders. In particular, it is possible that our minority stockholders may not receive a control premium for their shares upon any eventual sale of our business.

In addition, the standstill provision in the Investor Rights Agreement, which prohibits Roche from acquiring shares of our stock, terminates in April 2018. Speculation about the possibility of future actions Roche may take in connection with us, and the performance of Roche generally, may create significant volatility or otherwise adversely affect our share price.

We have entered into contractual provisions that may significantly limit our ability to undertake certain business opportunities, conduct certain operations, raise capital or require us to make material expenditures.

Pursuant to the Investor Rights Agreement, until such time as Roche and its affiliates beneficially own less than a majority of the outstanding shares of our common stock (subject to a cure period), we may not take certain actions without Roche's prior written consent, including any of the following: (a) appoint a new Chief Executive Officer; (b) incur any indebtedness (as defined in the Investor Rights Agreement) that would result in the outstanding aggregate principal amount of the indebtedness of us and our subsidiaries exceeding the lesser of (A) \$200 million and (B) 20% of our aggregate market capitalization at the time of such incurrence; (c) issue or sell any equity securities (including any securities convertible or exercisable into such equity securities), other than (X) common stock issued upon the exercise or settlement of equity awards granted as of the date of the Investor Rights Agreement in accordance with their terms, (Y) equity awards granted after the date of the Investor Rights Agreement pursuant to our 2013 Stock Option and Incentive Plan or any permitted new equity incentive plan or equity incentive plan amendment, and (Z) in connection with permitted acquisitions, certain shares of our common stock issued as stock consideration as long as such issuance does not result in Roche beneficially owning less than 50.5% of the outstanding shares of our common stock on a fully diluted basis; (d) establish or amend any of our equity incentive plans, except for certain permitted equity incentive plans and permitted equity incentive plan amendments; (e) acquire any entity, business or assets if the aggregate consideration payable by us exceeds the lesser of (X) \$200 million and (Y) 20% of our aggregate market capitalization at the time of such transaction, unless Roche is separately contemplating acquiring the same entity, business or assets; (f) dispose of any entity, business or assets if the aggregate consideration payable to us exceeds \$50 million; (g) change the scope and nature of our business; (h) amend our organizational documents; (i) take any action that would impair in any material respect our ability to perform our obligations under the Investor Rights Agreement or Roche's rights thereunder; or (j) voluntarily dissolve or liquidate or make any voluntary bankruptcy filings. Our Board or management team could believe that taking any one of these actions would be in our best interests and the best interests of our stockholders. As such, if we are unable to complete any of these actions because Roche does not provide its consent, it could adversely impact our business and results of operations.

The Investor Rights Agreement also requires us to establish and maintain a stock repurchase program and to repurchase shares of our common stock in order to maintain Roche's aggregate percentage ownership at no less than 50.5% of the outstanding shares of our common stock on a fully diluted basis, less any shares transferred by Roche. Our obligation to maintain such stock repurchase program may involve material expenditures of cash by us. If we fail to or are unable to satisfy our repurchase obligations under the stock repurchase program and we issue any securities and, as a result thereof, Roche beneficially owns less than 50.1% of the outstanding shares of our common stock on a fully diluted basis, the restrictions on Roche under the Investor Rights Agreement (including with respect to the agreement to vote Roche's shares of common stock, the standstill restrictions and the transfer restrictions), but not the rights of Roche under the Investor Rights Agreement, will immediately terminate, and Roche will thereafter have the ability to exercise in full its rights as a stockholder.

In addition, the Transaction Agreement by and between us and Roche Holdings, Inc., dated January 11, 2015, or the Transaction Agreement, provides for us to indemnify Roche for breaches of the Transaction Agreement by us subject to negotiated limitations. If we are required to indemnify Roche for any such breaches, it could have a material

adverse impact on our results of operations.

Roche's majority ownership of us and contractual restrictions on their ability to purchase and sell our common stock could have a material negative impact on the liquidity of our common stock.

As of December 31, 2017, Roche owned approximately 57.5% of our outstanding common stock. In addition, under the terms of the Investor Rights Agreement, until April 2018, Roche is restricted from acquiring additional shares, except in order to offset dilution and maintain its aggregate percentage ownership in us at no less than 50.5% of the outstanding shares of our common stock on a fully diluted basis. The Investor Rights Agreement also requires us to establish a stock repurchase program designed to maintain Roche's percentage ownership interest in our common stock. This ownership and these provisions will likely result in a less liquid trading market for our shares. Even when the standstill provision in the Investor Rights expires in April 2018, there can be no assurance that Roche will purchase shares of our stock. This lack of liquidity may make it more difficult for investors to transact in our shares and the price of our stock may suffer as a result.

The independent members of our Board, who are not our employees and are not Roche designees, do not represent a majority of our Board.

We have determined that the directors designated by Roche, who represent a minority on our Board, Troy Cox, our Chief Executive Officer, and Michael J. Pellini, M.D., our former Chief Executive Officer and current Chairman of the Board, are not independent directors under Nasdaq Rule 5605(a)(2). The other five members of our ten-person Board are independent under Nasdaq Rule 5605(a)(2), and therefore do not constitute a majority. NASDAQ Rule 5605(b) requires that a majority of the board of directors of NASDAQ listed companies be comprised of independent directors. However, due to Roche's majority ownership of our stock, we currently rely upon the "Controlled Company" exemption (as set forth in Nasdaq Rule 5615(c)(2)) from the majority Board independence requirement of Nasdaq Rule 5605(b). As a result of our reliance on the "Controlled Company" exemption, the perception of us as an independent entity could be diminished and our business could be harmed.

Pursuant to our agreements with Roche, certain development and commercialization decisions for our services are determined by Roche and we do not retain full control, which presents a number of risks including, among others:

- Roche may conduct multiple service development efforts within areas that are the subject of our collaboration with Roche, and Roche may develop, either alone or with others, services in related fields that are competitive with the current and future services that are the subject of our collaboration with Roche. Competing services, either developed by Roche, or to which Roche has rights, may result in withdrawal of or reduction in Roche's support for our programs or services, or otherwise impair the development, marketability and commercialization of our services;

- Collaborations often require the parties to cooperate, and failure to do so effectively could adversely affect or result in the termination or delay of development, regulatory approval or sales of our services, or result in litigation or arbitration;

- Roche's interests may not always be aligned with our interests, and Roche may not market our services in the same manner or to the same extent that we would or on the time schedule we currently contemplate, which could adversely affect our business;

- If our interests come into conflict with those of Roche, Roche may choose to act in its self-interest, which may limit our ability to implement our strategies or result in delays and other obstacles in the development or commercialization of our current and future services;

- Roche will have control and broad discretion over certain aspects of the commercialization of our services in its territory, and we will have little, if any, influence on how this commercialization will be conducted. This lack of control could cause delays or other difficulties, which may prevent us from receiving any royalty, milestone or other payments, or limit such payments, with respect to such commercialization;

- Roche may be unable to successfully commercialize our services in its territory, which would negatively impact our revenues and our strategy to develop these services;

- Any failure by Roche to comply with applicable laws and regulatory requirements in the marketing, sale and maintenance of regulatory approvals of our services could adversely affect our revenues or give rise to legal proceedings in which we would be involved;

- Roche has certain rights to terminate our agreements with them. If Roche terminates one or more of our agreements, the actual milestone, royalty and other payments that we receive under these agreements may be lower than expected, our ability to generate revenue under such agreements could be delayed or could cease entirely and our business and results of operations could be materially impacted; and

- There is no guarantee that the various milestone events set forth in our agreements with Roche will be achieved. To the extent we or Roche do not succeed in developing and commercializing our services, or if we or Roche fail to achieve such milestones, our revenues under these agreements will be limited.

These risks introduce considerable uncertainty regarding the success of our current and future collaborative efforts with Roche. If these efforts fail, our service development or commercialization of new and existing services in various territories could be delayed, and revenues from our current and future services could be adversely affected.

The Roche Credit Facility contains restrictions that limit our flexibility in operating our business.

In July 2017, we entered into an amendment, or the Credit Facility Amendment, to our secured credit facility agreement with Roche Finance, an affiliate of Roche, as amended, the Roche Credit Facility. As amended by the

Credit Facility Amendment, we may borrow up to \$200 million under the Roche Credit Facility. The Roche Credit Facility is secured by a lien on all of our assets, including shares of our subsidiaries, our intellectual property, insurance, trade and intercompany receivables, inventory and equipment and contract rights. The Roche Credit Facility requires us to meet specified minimum cash requirements and contains various affirmative and negative covenants that limit our ability to engage in specified types of transactions. These covenants limit our ability to, among other things:

- sell, lease, transfer or otherwise dispose of certain assets;
- acquire another company or business or enter into a merger or similar transaction with third parties;
- incur additional indebtedness, subject to customary exceptions;
- encumber or permit liens on certain assets; and

pay dividends on our common stock.

Our Board or management team could believe that taking any one of these actions would be in our best interests and the best interests of our stockholders. As such, if we are unable to complete any of these actions because Roche Finance does not provide its consent, it could adversely impact our business and results of operations.

In the event of a default, including, among other things, our failure to make any payment when due or our failure to comply with any provision of the Roche Credit Facility, Roche Finance could elect to declare all amounts outstanding to be immediately due and payable and terminate all commitments to extend further credit. If we are unable to repay those amounts, Roche Finance could proceed against the collateral granted to them to secure such indebtedness.

Roche Finance's interests as a lender may not always be aligned with our interests, or with Roche's interests as a stockholder. If our interests come into conflict with those of Roche Finance, including in the event of a default under the Roche Credit Facility, Roche Finance may choose to act in its self-interest, which could adversely affect the success of our current and future collaborative efforts with Roche.

Risks Relating to Our Financial Condition and Capital Requirements

We have a history of net losses. We expect to incur net losses in the future and we may never achieve sustained profitability.

We have historically incurred substantial net losses, including a net loss of \$161.5 million in 2017. From our inception in 2009 through December 31, 2017, we had an accumulated deficit of \$506.3 million. We expect our losses to continue as a result of not being broadly contracted with commercial payors, ongoing research and development expenses and increased selling and marketing costs. These losses have had, and will continue to have, an adverse effect on our working capital, total assets, and stockholders' equity. Because of the numerous risks and uncertainties associated with our research, development, and commercialization efforts, we are unable to predict when we will become profitable, and we may never become profitable. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our inability to achieve and then maintain profitability would negatively affect our business, financial condition, results of operations, and cash flows.

We may need to raise additional capital to fund our existing operations, develop our molecular information platform, commercialize new services, and expand our operations.

If our available cash balances, available borrowings under the Roche Credit Facility, and anticipated cash flow from operations are insufficient to satisfy our liquidity requirements, including because of lower demand for our services as a result of lower than currently expected rates of reimbursement from commercial third-party payors and government payors or other risks described in this Annual Report, we may seek to sell common or preferred equity or convertible debt securities, enter into another credit facility or another form of third-party funding, or seek other debt financing.

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 services and address competitive developments;
- fund development and marketing efforts of any future services;
- further expand our laboratory operations domestically and outside of the United States;
- expand our technologies into other types of cancers;
- acquire, license or invest in technologies, including information technologies;
- acquire or invest in complementary businesses or assets; and
- finance capital expenditures and general and administrative expenses.

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

- our ability to achieve revenue growth;
- our rate of progress in establishing reimbursement arrangements with domestic and international commercial third-party payors and government payors;
- the cost of expanding our laboratory operations and offerings, including our sales and marketing efforts;
- our rate of progress in, and cost of the sales and marketing activities associated with, establishing adoption of and reimbursement for our services;
- our rate of progress in, and cost of research and development activities associated with, services in research and early development;
- the effect of competing technological and market developments;

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costs related to international expansion; and
the potential cost of and delays in research and development as a result of any regulatory oversight applicable to our services.

The various ways we could raise additional capital carry potential risks and are, in certain cases as set forth in the Investor Rights Agreement and Roche Credit Facility, subject to the prior consent of Roche. If we raise funds by issuing equity securities, dilution to our stockholders could result. Any 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, like the Roche Credit Facility, could impose significant restrictions on our operations. If we raise funds through collaborations and licensing arrangements, we might be required to relinquish significant rights to our platform technologies or services, or grant licenses on terms that are not favorable to us.

Additional equity or debt financing might not be available on reasonable terms, if at all. If we cannot secure additional funding when needed, we may have to delay, reduce the scope of, or eliminate one or more research and development programs or sales and marketing initiatives. In addition, we may have to work with a partner on one or more of our development programs, which could lower the economic value of those programs to us. Lastly, if we are unable to obtain the requisite amount of financing needed to fund our planned operations, it could have a material adverse effect on our business and ability to continue operating as a going concern.

We incur significant costs as a result of operating as a public company and our management devotes substantial time to public company compliance programs.

As a public company, we incur significant legal, accounting, and other expenses due to our compliance with regulations and disclosure obligations applicable to us, including compliance with the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, as well as rules implemented by the United States Securities and Exchange Commission, or SEC, and the NASDAQ Stock Market, or NASDAQ. The SEC and other regulatory authorities have continued to adopt new rules and regulations and make additional changes to existing regulations that require our compliance. In July 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act, or the Dodd-Frank Act, was enacted. There are significant corporate governance and executive compensation related provisions in the Dodd-Frank Act that have required the SEC to adopt additional rules and regulations in these areas. Stockholder activism, the current political environment, and the current high level of government intervention and regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact, in ways we cannot currently anticipate, the manner in which we operate our business. Our management and other personnel devote a substantial amount of time to these compliance programs and monitoring of public company reporting obligations, and as a result of the new corporate governance and executive compensation related rules, regulations, and guidelines prompted by the Dodd-Frank Act, and further regulations and disclosure obligations expected in the future, we will likely need to devote additional time and costs to comply with such compliance programs and rules. These rules and regulations will cause us to incur significant legal and financial compliance costs and will make some activities more time-consuming and costly.

To comply with the requirements of being a public company, we may need to undertake various actions, including implementing new internal controls and procedures and hiring new accounting or internal audit staff. The Sarbanes-Oxley Act requires that we maintain effective disclosure controls and procedures and internal control over financial reporting. We are continuing to develop and refine our disclosure controls and other procedures that are designed to ensure that information required to be disclosed by us in the reports that we file with the SEC is recorded, processed, summarized, and reported within the time periods specified in SEC rules and forms, and that information required to be disclosed in reports under the Exchange Act is accumulated and communicated to our principal executive and financial officers. Our current controls and any new controls that we develop may become inadequate, and weaknesses in our internal control over financial reporting may be discovered in the future. Any failure to develop or maintain effective controls could adversely affect the results of periodic management evaluations and annual

independent registered public accounting firm attestation reports regarding the effectiveness of our internal control over financial reporting, which we may be required to include in our periodic reports we file with the SEC under Section 404 of the Sarbanes-Oxley Act, and could harm our operating results, cause us to fail to meet our reporting obligations, or result in a restatement of our prior period financial statements. In the event that we are not able to demonstrate compliance with the Sarbanes-Oxley Act, that our internal control over financial reporting is perceived as inadequate, or that we are unable to produce timely or accurate financial statements, investors may lose confidence in our operating results, and the price of our common stock could decline.

We are required to comply with certain of the SEC rules that implement Section 404 of the Sarbanes-Oxley Act, which requires management to certify financial and other information in our quarterly and annual reports and provide an annual management report on the effectiveness of our internal control over financial reporting. This assessment needs to include the disclosure of any material weaknesses in our internal control over financial reporting identified by our management or our independent registered public accounting firm. During the evaluation and testing process, if we identify one or more material weaknesses in our internal control over financial reporting or if we are unable to complete our evaluation, testing, and any required remediation in a timely fashion, we will be unable to assert that our internal control over financial reporting is effective.

Our independent registered public accounting firm will not be required to formally attest to the effectiveness of our internal control over financial reporting until the first annual report required to be filed with the SEC following the date we are no longer an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, which we expect to occur in our annual report for the year ended December 31, 2018. We cannot assure you that there will not be material weaknesses or significant deficiencies in our internal controls in the future. If we are unable to assert 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 control over financial reporting, we could lose investor confidence in the accuracy and completeness of our financial reports, which could have a material adverse effect on the price of our common stock.

In addition, adherence to our obligations to repurchase shares of our common stock pursuant to Roche’s anti-dilution protections in the Investor Rights Agreement may be costly and require substantial resources and efforts. Furthermore, adherence to our other obligations under the Investor Rights Agreement and the Tax Sharing Agreement, including our compliance with certain financial, accounting and tax reporting obligations, may be costly and time-consuming, require substantial resources and efforts, and result in changes to our existing business practices.

Our ability to use our net operating loss carryforwards to offset future taxable income may be subject to certain limitations.

In general, under Section 382 of the Internal Revenue Code of 1986, as amended, or the Code, a corporation that undergoes an “ownership change” is subject to annual limitations on its ability to use its pre-change net operating loss carryforwards or other tax attributes, or NOLs, to offset future taxable income or reduce taxes. In 2015, we completed a Section 382 analysis and believe we experienced one or more ownership changes in our corporate history, within the meaning of Section 382 of the Code, including in connection with our transaction with Roche that closed in April 2015; accordingly, our pre-change NOLs are subject to certain annual limitations under Section 382. Future changes in our stock ownership could result in additional ownership changes under Section 382 of the Code further limiting our ability to utilize our NOLs. Furthermore, our ability to use NOLs of companies that we may acquire in the future may be subject to limitations. For these reasons, we may not be able to use a material portion of the NOLs even if we attain profitability.

Risks Related to Our Common Stock

We expect that our stock price may fluctuate significantly.

Although our common stock is listed on the NASDAQ Global Select Market, an active public market for our common stock may not be sustained, among other reasons, due to the ownership of a majority of our outstanding stock by Roche and contractual restrictions set forth in the Investor Rights Agreement on Roche’s and our ability to transact our shares.

In addition, the market price of shares of our common stock could be subject to wide fluctuations in response to many risk factors listed in this section, and others beyond our control, including:

- actual or anticipated fluctuations in our financial condition and operating results;
- actual or anticipated changes in our growth rate relative to our competitors;
- competition from existing services or new services that may emerge;
- announcements by us, our biopharmaceutical partners, or our competitors of significant acquisitions, strategic partnerships, joint ventures, collaborations, or capital commitments;
- failure to meet or exceed financial estimates and projections of the investment community or that we provide to the public and the revision of any financial estimates and projections that we provide to the public;
- issuance of new or updated research or reports by securities analysts;

fluctuations in the valuation of companies perceived by investors to be comparable to us;
share price and volume fluctuations attributable to inconsistent trading volume levels of our shares;
additions, transitions or departures of key management or scientific personnel;
disputes or other developments related to proprietary rights, including patents, litigation matters, and our ability to obtain patent protection for our technologies;
changes to reimbursement levels by commercial third-party payors and government payors, including Medicare, and any announcements relating to reimbursement levels;
announcement or expectation of additional debt or equity financing efforts;
sales of our common stock by us, our insiders, or our other stockholders;
the perception of us in the marketplace as an independent entity;
the performance of Roche or speculation about the possibility of future actions Roche may take in connection with us; and
general economic and market conditions.

These and other market and industry factors may cause the market price and demand for our common stock to fluctuate substantially, regardless of our actual operating performance, which may limit or prevent investors from readily selling their shares of our common stock and may otherwise negatively affect the liquidity of our common stock. In addition, the stock market in general, and NASDAQ and biopharmaceutical companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. In the past, when the market price of a stock has been volatile, holders of that stock have instituted securities class action litigation against the company that issued the stock. If any of our stockholders brought a lawsuit against us, we could incur substantial costs defending the lawsuit. Such a lawsuit could also divert the time and attention of our management.

We are an “emerging growth company” and will be able to avail ourselves of reduced disclosure requirements applicable to emerging growth companies, which could make our common stock less attractive to investors.

We are an “emerging growth company,” as defined in the JOBS Act, and we intend to take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not “emerging growth companies,” including not being required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. In addition, Section 107 of the JOBS Act also provides that an emerging growth company can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act of 1933, or the Securities Act, for complying with new or revised accounting standards. In other words, an emerging growth company can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. However, we are electing not to take advantage of such extended transition period, and as a result we will comply with new or revised accounting standards on the relevant dates on which adoption of such standards is required for non-emerging growth companies. Section 107 of the JOBS Act provides that our decision to not take advantage of the extended transition period for complying with new or revised accounting standards is irrevocable.

We cannot predict if investors will find our common stock less attractive because we may rely on any of the exemptions available under 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 be more volatile. We may take advantage of these reporting exemptions until we are no longer an emerging growth company. 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 revenue of \$1.0 billion or more; (ii) December 31, 2018; (iii) the date on which we have issued more than \$1.0 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 have never paid dividends on our capital stock, the Roche Credit Facility prohibits the payment of dividends, and we do not anticipate paying any dividends in 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 paid dividends on any of our classes of capital stock to date, the Roche Credit Facility prohibits the payment of dividends and we currently intend to retain all of our future earnings, if any, to fund the development and growth of our business. As a result, capital appreciation, if any, of our common stock will be your sole source of gain for the foreseeable future. Consequently, in the foreseeable future, you will likely only experience a gain from your investment in our common stock if the price of our common stock increases.

If equity research analysts do not publish research or reports about our business or if they issue unfavorable commentary or downgrade our common stock, the price of our common stock could decline.

The trading market for our common stock relies in part on the research and reports that equity research analysts publish about us and our business. We do not control these analysts. The price of our common stock could decline if one or more equity research analysts downgrade our common stock or if they issue other unfavorable commentary or cease publishing reports about us or our business.

Our relationship with Roche and anti-takeover provisions contained in our certificate of incorporation and bylaws, as well as provisions of Delaware law, could impair a takeover attempt.

As of December 31, 2017, Roche beneficially owned approximately 57.5% of our outstanding common stock. As a result, until such time as Roche and its affiliates hold shares representing less, and potentially a material portion less, than a majority of the votes entitled to be cast by the holders of our outstanding common stock at a stockholder meeting, Roche generally will have the ability to control the outcome of matters submitted for the vote of our stockholders related to a proposed takeover attempt. In addition, pursuant to the Roche Credit Facility, a “Change in Control” is considered to be an “Event of Default” which triggers the acceleration of all unpaid indebtedness under the Roche Credit Facility. The existence of a majority stockholder and the acceleration of the repayment of the indebtedness under the Roche Credit Facility could discourage third parties from acquiring our business since the third party would be required to negotiate any such transaction with Roche, and the interests of Roche with respect to such transaction may be

different from the interests of our other stockholders. In particular, it is possible that our minority stockholders may not receive a control premium for their shares upon any eventual sale of our business.

Our certificate of incorporation, bylaws, and Delaware law contain provisions which could have the effect of rendering more difficult, delaying or preventing an acquisition deemed undesirable by our Board. Our corporate governance documents include provisions:

- authorizing “blank check” preferred stock, which could be issued by our Board without stockholder approval and may contain voting, liquidation, dividend, and other rights superior to our common stock;
- limiting the liability of, and providing indemnification to, our directors and officers;
- limiting the ability of our stockholders to call and bring business before special meetings;
- requiring advance notice of stockholder proposals for business to be conducted at meetings of our stockholders and for nominations of candidates for election to our Board;
- controlling the procedures for the conduct and scheduling of Board and stockholder meetings; and
- providing our Board with the express power to postpone previously scheduled annual meetings and to cancel previously scheduled special meetings.

These provisions, alone or together, could delay or prevent hostile takeovers and changes in control or changes in our management.

As a Delaware corporation, we are also subject to provisions of Delaware law, including Section 203 of the Delaware General Corporation Law, which prevents some stockholders holding more than 15% of our outstanding common stock from engaging in certain business combinations without approval of the holders of substantially all of our outstanding common stock.

Any provision of our certificate of incorporation, bylaws or Delaware law that has the effect of delaying or deterring a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our common stock, and could also affect the price that some investors are willing to pay for our common stock.

Our certificate of incorporation designates the Court of Chancery of the State of Delaware as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could limit our stockholders’ ability to obtain a favorable judicial forum for disputes with us or our directors, officers, or other employees.

Our certificate of incorporation provides that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers, or other employees to us or our stockholders, (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or our bylaws, or (iv) any action asserting a claim against us governed by the internal affairs doctrine. 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 provisions of our certificate of incorporation described above. This choice of forum provision may limit a stockholder’s ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers, and other employees. Alternatively, if a court were to find these provisions of our certificate of incorporation inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could adversely affect our business, financial condition or results of operations.

We are recently the subject of securities litigation, which could result in substantial costs and may divert our management’s attention.

From time to time, we are a party to litigation arising in the ordinary course of its business. As of December 31, 2017, we were not currently a party to any significant litigation. On July 28, 2017, a purported stockholder of the Company filed a putative class action in the U.S. District Court for the District of Massachusetts, against the Company and certain of its current and former executives, captioned Mahoney v. Foundation Medicine, Inc., et al., No. 1:17-cv-11394. The complaint alleges violations of Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 and Rule 10b-5 thereunder based on allegedly false and misleading statements when providing 2015 financial guidance. The lawsuit seeks among other things, unspecified compensatory damages in connection with the Company's allegedly inflated stock price between February 26, 2014 and November 3, 2015, interest, attorneys' fees and costs, and unspecified equitable/injunctive relief. On December 22, 2017, the plaintiffs filed an amended class action complaint alleging violations of Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 and Rule 10b-5 thereunder based on allegedly false and misleading statements concerning certain of the Company's tests. On February 20, 2018, the Company moved to dismiss the complaint for failure to state a claim. We believe this case is without merit and, therefore, continue to vigorously defend ourselves against the allegations.

ITEM 1B.UNRESOLVED STAFF COMMENTS

Not applicable.

ITEM 2.PROPERTIES

We have leased approximately 123,200 square feet of laboratory and office space at 150 Second Street, Cambridge, Massachusetts through April 2024; approximately 48,000 square feet of laboratory and office space at 7010 Kit Creek Road, Research Triangle Park, North Carolina through January 2022; approximately 38,000 square feet of office space at Ten Canal Park in Cambridge, Massachusetts through approximately September 2020; approximately 7,700 square feet of laboratory and office space in Penzberg, Germany through September 2021; and approximately 2,000 square feet of office space in Palo Alto, California through April 2022. When each of our leases expire, we may renew the applicable existing lease or look for additional or alternate space for our operations. We believe that any additional space we may require will be available on commercially reasonable terms.

ITEM 3. LEGAL PROCEEDINGS

From time to time, we are a party to litigation arising in the ordinary course of its business. As of December 31, 2017, we were not a party to any significant litigation. On July 28, 2017, a purported stockholder of the Company filed a putative class action in the U.S. District Court for the District of Massachusetts, against the Company and certain of its current and former executives, captioned Mahoney v. Foundation Medicine, Inc., et al., No. 1:17-cv-11394. The complaint alleges violations of Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 and Rule 10b-5 thereunder based on allegedly false and misleading statements when providing 2015 financial guidance. The lawsuit seeks among other things, unspecified compensatory damages in connection with the Company's allegedly inflated stock price between February 26, 2014 and November 3, 2015, interest, attorneys' fees and costs, and unspecified equitable/injunctive relief. On December 22, 2017, the plaintiffs filed an amended class action complaint alleging violations of Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 and Rule 10b-5 thereunder based on allegedly false and misleading statements concerning certain of the Company's tests. On February 20, 2018, the Company moved to dismiss the complaint for failure to state a claim. We believe this case is without merit and, therefore, continue to vigorously defend ourselves against the allegations.

ITEM 4.MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND
5. ISSUER PURCHASES OF EQUITY SECURITIES

Market Information

Our common stock commenced trading under the symbol "FMI" on the NASDAQ Global Select Market on September 25, 2013. Prior to that time, there was no public market for our common stock.

The following table sets forth on a per share basis, for the periods indicated, the low and high close prices of our common stock as reported by the NASDAQ Global Select Market.

	High	Low
Year ended December 31, 2017		
First Quarter	\$35.05	\$17.80
Second Quarter	\$42.75	\$30.35
Third Quarter	\$41.80	\$33.30
Fourth Quarter	\$68.85	\$38.90

	High	Low
Year ended December 31, 2016		
First Quarter	\$19.79	\$13.71
Second Quarter	\$21.53	\$15.23
Third Quarter	\$25.10	\$19.03
Fourth Quarter	\$24.30	\$17.70

Holders of Record

On March 2, 2018, the last reported sales price of our common stock on the Nasdaq Global Select Market was \$82.20 and as of March 2, 2018, there were approximately 32 holders of record of our common stock. However, because many of our outstanding shares are held in accounts with brokers and other institutions, we believe we have more beneficial owners.

Dividend Policy

We have never declared or paid dividends on our common stock and do not expect to pay dividends on our common stock for the foreseeable future. Instead, we anticipate that all of our earnings in the foreseeable future will be used for the operation and growth of our business. Any future determination to declare dividends will be subject to the discretion of our Board and will depend on various factors, including applicable laws, our results of operations, financial condition, future prospects, and any other factors deemed relevant by our Board. In addition, any future indebtedness that we may incur could preclude us from paying dividends.

Stock Performance Graph

This graph is not “soliciting material,” is not deemed “filed” with the SEC and is not to be incorporated by reference into any of our filings under the Securities Act or the Exchange Act, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

The following graph shows the total stockholder return of an investment of \$100 in cash on September 25, 2013 (the first day of trading of our common stock), through December 31, 2017 for (i) our common stock, (ii) the NASDAQ Composite Index (U.S.), and (iii) the NASDAQ Biotechnology Index. Pursuant to applicable SEC rules, all values assume reinvestment of the full amount of all dividends, however no dividends have been declared on our common stock to date. The stockholder return shown on the graph below is not necessarily indicative of future performance, and we do not make or endorse any predictions as to future stockholder returns.

Equity Compensation Plan Information

For information regarding securities authorized for issuance under equity compensation plans, see Part III “Item 12—Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.”

Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities by the Issuer and Affiliated Purchasers

None.

ITEM 6. SELECTED FINANCIAL DATA

The selected financial data set forth below as of December 31, 2017 and 2016, and for each of the years ended December 31, 2017, 2016, and 2015 has been derived from the audited consolidated financial statements of the Company, which are included elsewhere in this Annual Report on Form 10-K. We derived the consolidated financial data for the years ended December 31, 2014 and 2013, and as of December 31, 2015, 2014, and 2013 from our audited consolidated financial statements not included in this Annual Report on Form 10-K. Certain reclassifications have been made to the revenue captions of the Condensed Consolidated Statements of Operations and Comprehensive Loss to conform to the current classifications. These reclassifications had no net effect on the Company's consolidated results.

The information set forth below should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the audited consolidated financial statements, and the notes thereto, and other financial information included herein. Our historical results are not necessarily indicative of our future results.

	Year Ended December 31,				
	2017	2016	2015	2014	2013
	(in thousands, except share and per share data)				
Statement of Operations Data:					
Revenue:					
Molecular information services	\$91,695	\$60,255	\$71,766	\$59,921	\$27,584
Related-party molecular information services from Roche	25,458	21,493	13,132	197	187
Pharma research and development services	10,922	13,133	7,993	300	552
Related-party pharma research and development services from Roche	24,828	21,984	312	661	667
Total revenue	152,903	116,865	93,203	61,079	28,990
Costs and expenses:					
Cost of molecular information services	76,256	52,978	36,695	27,434	11,659
Cost of related-party molecular information services from Roche	9,014	3,770	2,736	—	—
Selling and marketing	66,727	57,951	49,030	28,997	12,326
General and administrative	70,340	48,611	50,614	27,302	21,865
Research and development	91,509	67,371	43,883	30,629	24,901
Total costs and expenses	313,846	230,681	182,958	114,362	70,751
Loss from operations	(160,943)	(113,816)	(89,755)	(53,283)	(41,761)
Interest (expense) income, net	(727)	624	124	(42)	(235)
Other income (expense), net	204	—	—	1,103	(948)
Net loss	(161,466)	(113,192)	(89,631)	(52,222)	(42,944)
Accretion of convertible preferred stock	—	—	—	—	(139)
Net loss applicable to common stockholders	\$(161,466)	\$(113,192)	\$(89,631)	\$(52,222)	\$(43,083)
Net loss per common share, basic and diluted	\$(4.50)	\$(3.25)	\$(2.73)	\$(1.87)	\$(4.64)
Weighted average common shares outstanding, basic and diluted	35,877,678	34,794,347	32,836,219	27,954,327	9,294,730

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	December 31,				
	2017	2016	2015	2014	2013
	(in thousands)				
Balance Sheet Data:					
Cash, cash equivalents, and marketable securities	\$71,404	\$143,019	\$232,309	\$72,080	\$124,293
Working capital	57,376	128,270	199,748	73,202	117,551
Total assets	169,003	214,035	297,989	111,938	157,268
Indebtedness to Roche - non-current	60,000	—	—	—	—
Accumulated deficit	(506,349)	(344,808)	(231,616)	(141,985)	(89,763)
Total stockholders' equity	\$31,668	\$164,846	\$257,689	\$86,169	\$131,711

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of our financial condition and results of operations should be read together with our "Selected Financial Data" and our consolidated financial statements, related notes, and other financial information included elsewhere in this Annual Report on Form 10-K. This discussion contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those described in, or implied by, the forward-looking statements. Factors that could cause or contribute to those differences include, but are not limited to, those identified below and those discussed above in the section entitled "Risk Factors."

Overview

We are a molecular information company focused on fundamentally changing the way in which patients with cancer are evaluated and treated. We believe an information-based approach to making clinical treatment decisions based on comprehensive genomic profiling will become a standard of care for patients with cancer. We derive revenue from selling molecular information services that are enabled by our molecular information platform to physicians and biopharmaceutical companies. Our platform includes proprietary methods and algorithms for analyzing specimens across all types of cancer, and for incorporating that information into clinical care in a concise and user-friendly fashion. Our services provide genomic information about each patient's individual cancer, enabling physicians to optimize treatments in clinical practice and biopharmaceutical companies to develop targeted oncology therapies more effectively. We believe we have a significant first mover advantage in providing a portfolio of comprehensive genomic profiling and molecular information services on a commercial scale.

Our clinical molecular information products, FoundationOne for solid tumors, FoundationOneHeme for blood-based cancers, or hematologic malignancies, including leukemia, lymphoma, myeloma, pediatric cancers, and advanced sarcomas, FoundationACT (Assay for Circulating Tumor DNA), a blood-based (liquid biopsy) assay to measure circulating tumor DNA, or ctDNA, and FoundationFocus CDx BRCA, a companion diagnostic assay to aid in identifying women with ovarian cancer for whom treatment with Rubraca™ (rucaparib) is being considered, are widely available comprehensive genomic profiles designed for use in the routine care of patients with cancer and in research. In November 2017, we received FDA approval for FoundationOne CDx, a broad companion diagnostic assay for solid tumors. FoundationOne CDx was approved as part of the parallel review process for breakthrough devices with the FDA and CMS. Concurrent with FDA approval, CMS issued a preliminary national coverage determination, or NCD, for FoundationOne CDx that proposes nationwide Medicare coverage for FoundationOne CDx for eligible Medicare beneficiaries with advanced cancer (i.e., recurrent, metastatic or advanced stage IV cancer), who have not been previously tested using the same NGS technology and continue to seek further cancer therapy. Specifically, the preliminary NCD proposes coverage for FoundationOne CDx for indications in which there are FDA-approved companion diagnostic claims. The preliminary NCD also proposes a pathway for additional coverage under CED in other solid tumor types. We received our proprietary billing code in February 2018 and expect to commercialize FoundationOne CDx following the issuance of the final coverage policy by CMS.

To accelerate commercial growth and enhance our competitive advantage, we are continuing to develop and commercialize new molecular information products for physicians and biopharmaceutical companies, strengthen our commercial organization, introduce new marketing, education and provider engagement efforts, grow our molecular information knowledgebase, FoundationCore, aggressively pursue reimbursement from government payors and regional and national third-party commercial payors, publish scientific and medical advances, and foster relationships throughout the oncology community.

Since our inception in 2009, we have devoted substantially all of our resources to the development of our molecular information platform, the commercialization of FoundationOne and FoundationOneHeme, and the development of new products such as FoundationACT, FoundationFocus CDx BRCA and FoundationOne CDx. We have incurred significant losses since our inception, and as of December 31, 2017 our accumulated deficit was \$506.3 million. We expect to continue to incur operating losses over the near term as we expand our commercial operations, including

supporting the commercial launch of FoundationOne CDx, invest in our molecular information platform and additional products, and continue to scale our technology and data infrastructure.

FoundationOne, FoundationOneHeme, and FoundationACT have been commercialized as laboratory developed tests, or LDTs, which are subject to the Clinical Laboratory Improvement Amendments of 1988, or CLIA, and are not currently regulated as medical devices under the Federal Food, Drug and Cosmetic Act. In addition to FoundationFocus CDx BRCA, we received FDA approval for FoundationOne CDx. We believe our work developing companion diagnostic assays with our biopharmaceutical partners accelerates our progress in this area, and is a key component of our strategy and a significant differentiator for our business.

Recent Developments

On November 30, 2017, the FDA approved FoundationOne CDx, the first FDA-approved broad companion diagnostic test for solid tumors. FoundationOne CDx is a companion diagnostic to identify patients who may benefit from treatment with specific FDA-approved targeted therapies, and also includes genomic biomarkers to help inform the use of other targeted oncology therapies, including immunotherapies. It is also a tool for physicians that identifies patient opportunities for clinical trial participation, and is

an FDA-approved platform for companion diagnostic development for biopharma companies developing precision therapeutics. Concurrent with FDA approval of FoundationOne CDx, CMS issued a preliminary NCD that proposes nationwide Medicare coverage for FoundationOne CDx for eligible Medicare beneficiaries with advanced cancer (i.e., recurrent, metastatic or advanced stage IV cancer), who have not been previously tested using the same NGS technology and continue to seek further cancer therapy. Specifically, the preliminary NCD proposes coverage for FoundationOne CDx for indications in which there are FDA-approved companion diagnostic claims. The preliminary NCD also proposes a pathway for additional coverage under CED in other solid tumor types.

On January 16, 2018, we announced a broad partnership with Pfizer focused on the development, regulatory support and commercialization of companion diagnostics that, if successful, will be included on FoundationOne CDx, as well as access to our data analytics platform to facilitate novel biomarker discovery and to optimize clinical trial design.

On January 30, 2018, we announced a collaboration with the European Organization for Research and Treatment of Cancer (EORTC) in which our CGP tests will be used to inform patient eligibility for oncology clinical trials through the EORTC's Screening Patients for Efficient Clinical Trial Access (SPECTA) program. SPECTA is a pan-European network built by the EORTC with key institutions collaborating to provide efficient access for patients to molecularly driven clinical trials.

On February 28, 2018, we entered into an agreement to expand our Ex-U.S. Commercialization Agreement with Roche to broaden patient access to its comprehensive genomic profiling (CGP) services. Specifically, Foundation Medicine and Roche have agreed to include FoundationOne CDx as a commercial product under the Ex-U.S. Commercialization Agreement.

Financial Operations Overview

Revenue

We derive revenue from the provision of molecular information services provided to our ordering physicians and biopharmaceutical customers, as well as from pharma research and development services provided to our biopharmaceutical customers. Molecular information services include molecular profiling and the delivery of other molecular information derived from our platform. Pharma research and development services include the provision of services in support of research and development efforts of our biopharmaceutical partners using our existing services, platforms and information solutions, notably our companion diagnostic development services, our FoundationSmartTrials suite of offerings, and our FoundationCore data analytic services. We currently receive payments from commercial third-party payors, Medicare, certain hospitals and cancer centers with which we have direct-bill relationships, individual patients, and our biopharmaceutical customers.

Through December 31, 2017, we recognized revenue in accordance with FASB ASC Topic 605, Revenue Recognition ("ASC 605"). Accordingly, we recognize revenue when all of the following criteria are met: (i) persuasive evidence of an arrangement exists; (ii) delivery has occurred; (iii) the fee is fixed or determinable; and (iv) collectability is reasonably assured. Criterion (i) is satisfied when we have an arrangement or contract in place. Criterion (ii) is satisfied when we deliver a report to the ordering physician or the biopharmaceutical customer. Determination of criteria (iii) and (iv) are based on management's judgments regarding whether the fee is fixed or determinable, and whether the collectability of the fee is reasonably assured.

Under FASB ASC Topic 605, we recognize revenue on a cash basis when we cannot conclude that criteria (iii) and (iv) have been met. We currently recognize revenue on a cash basis from sales of our molecular information services to certain clinical customers, including payments received from commercial third-party payors, Medicare, and from patients who make co-payments, pay deductibles or from other amounts that we have been unable to collect from third-party payors. We use judgment in our assessment of whether the fee is fixed or determinable and whether collectability is reasonably assured in determining when to recognize revenue in the future as we continue to gain

payment experience with third-party payors and patients. Accordingly, we expect to recognize revenue on a cash basis for these clinical customers until we have sufficient history to reliably estimate payment patterns. Our molecular information services are delivered electronically, and as such there are no shipping and handling fees incurred by us or billed to customers. Our molecular information services are exempt from state sales taxation due to the nature of the services. As a result, we do not charge customers state sales tax.

We recognize revenue from the sale of our molecular information services to clinical customers, including certain hospitals, cancer centers, other institutions and patients, at the time results of the test are reported to physicians, if criteria (i) through (iv) above are met.

For the majority of physician orders within the United States, the payment we ultimately receive depends upon the rate of reimbursement from commercial third-party payors and government payors. We are not currently a participating provider with most commercial third-party payors and, therefore, do not have specific coverage decisions from those third-party payors for our services with established payment rates. Currently, most of the commercial third-party payors that reimburse our claims do so based upon Current Procedural Terminology, or CPT, codes, the predominant methodology, or based on other methods such as percentages of charges or other formulas that are not made known to us. In addition, a small portion of commercial third-party payors outsource our claims to preferred provider organizations or third-party administrators, who process our claims and pay us directly at negotiated rates.

Coverage and payment is determined by each third-party payor on a case-by-case basis. Our efforts in obtaining reimbursement based on individual claims, including pursuing appeals or reconsiderations of claim denials, take a substantial amount of time, and bills may not be paid for many months or at all. Furthermore, if a third-party payor denies coverage after final appeal, payment may not be received at all.

As of December 31, 2017, we were not a participating provider in any state Medicaid program, and therefore, did not have coverage determinations under which our tests were covered by these Medicaid programs. We are a participating provider in the Medicare program on a limited basis.

Although we are in the process of seeking a final NCD for FoundationOne CDx as part the Parallel Review process, there are currently no NCDs that establish whether and how our tests are covered by Medicare. In the absence of NCDs, local MACs that administer the Medicare program in various regions have some discretion in determining coverage, the reimbursement rate, and payment for tests. The local MAC for our Cambridge laboratory, National Government Services, issued a final LCD effective April 1, 2016, to provide coverage for hotspot tests of 5 to 50 genes for patients with metastatic NSCLC. We do not believe this LCD reflects coverage for our validated comprehensive genomic profiling services, which include comprehensive analysis of greater than 50 genes and all classes of alterations. As of December 31, 2017, National Government Services has either denied the FoundationOne or FoundationOneHeme claims that we have submitted using stacked CPT codes, or not processed and reimbursed us for the claims in a manner that we believe is consistent with applicable processing guidelines. In August 2016, we began submitting claims for FoundationACT tests associated with our Cambridge, Massachusetts laboratory to NGS using stacked CPT codes, and as of December 31, 2017, we have recognized revenue from some of those claims. The local MAC for our Research Triangle Park laboratory, Palmetto GBA, issued a final LCD, the Palmetto LCD, to cover well-validated comprehensive genomic profiles for initially diagnosed Stage IIIB and Stage IV NSCLC patients who meet the eligibility criteria.

In January 2017, we began submitting claims to Palmetto for FoundationOne test requisitions where components of our testing services were performed in our North Carolina facility. In March 2017, we began receiving payment for eligible NSCLC claims submitted under the Palmetto LCD based upon the allowable rate of \$3,416 per test. In addition, on December 22, 2016, Palmetto issued three draft LCDs for the use of comprehensive genomic profiling to guide treatment in patients with metastatic colorectal cancer; with metastatic melanoma; and with advanced primary peritoneal, fallopian tube and ovarian cancer. These draft LCDs are awaiting finalization.

There are a subset of Medicare patients that fall under the Medicare 14-Day Rule, requiring us to bill the ordering institution directly instead of billing Medicare. We have recognized some revenue for these patients upon receipt of payment from the institution. As of December 31, 2017, National Government Services has either denied the FoundationOne or FoundationOneHeme claims that we have submitted, or not processed and reimbursed us for the claims in a manner that we believe is consistent with applicable processing guidelines. In August 2016, we began submitting claims for FoundationACT tests associated with our Cambridge, Massachusetts laboratory to National Government Services using stacked CPT codes, and as of December 31, 2017, we have recognized revenue from some of those claims.

FoundationOne, FoundationOneHeme, FoundationACT, and FoundationFocus CDxBRCA tests for patients covered by Original Medicare, including those patients that fell under the 14-Day Rule, represented approximately 30%, 30% and 31% of total tests reported to physicians in the United States during the years ended December 31, 2017, 2016, and 2015, respectively.

We also receive a small portion of revenue from patients who make co-payments and pay deductibles. In addition, while we take on the primary responsibility for obtaining third-party reimbursement on behalf of patients, including appeals for any initial denials, we ultimately do bill patients for amounts that we have been unable to collect from their insurance providers. We initiated the process to seek reimbursement from Medicare at the end of 2013, and we may also decide to provide appropriate notices to patients covered by Medicare to enable us to bill a patient for all or

part of a claim that is denied coverage by Medicare. We offer a comprehensive patient assistance program to support patients whose incomes are below certain thresholds and to allow for extended payment terms, as necessary, given the patient's economic situation.

We expect that our current lack of broad coverage decisions and the general uncertainty around reimbursement for our tests will continue to negatively impact our revenue and earnings, because we will not recognize revenue for tests performed, particularly if our test volumes increase period-to-period. In the future, pending a final NCD, a MAC having jurisdiction over any one of our laboratory facilities could issue a negative coverage determination for one or more of our tests that would apply to future claims for tests performed at the relevant facility and that MAC could defer processing claims pending a coverage or payment determination. If a claim is paid by a MAC assigned to the jurisdiction in which one of our laboratory facilities is located, either upon acceptance of the claim or following a successful appeal of a denied claim, we will generate revenue from Medicare for our testing. Following our achievement of a coverage decision from a commercial third-party payor or a government payor, or once we have a sufficient history of claims collections with any such payor that we conclude the fees for our tests for individuals insured by such payor are sufficiently fixed or determinable and collectability is reasonably assured, we anticipate that we will begin to recognize revenue from such payor on an accrual basis.

As of December 31, 2017, we had cash and cash equivalents of approximately \$71.4 million. If we are not able to obtain coverage decisions from additional commercial third-party payors and government payors over the longer term, and our available cash

and marketable securities balances, cash flows from operations, and available borrowings are insufficient to satisfy our liquidity requirements, we may require additional capital. Additional capital may not be available on reasonable terms, or at all, and may be subject to the prior consent of Roche pursuant to our Investor Rights Agreement with Roche dated January 11, 2015, or the Investor Rights Agreement, and the Credit Facility Agreement with Roche Finance Ltd., or Roche Finance, dated August 2, 2016, as amended by the Amendment Letter Agreement with Roche Finance dated July 31, 2017, or the Roche Credit Facility.

Revenue from sales of our services to biopharmaceutical customers are based on a negotiated price per test or on the basis of fees negotiated as part of an agreement to provide certain testing volume, data access, or pharma research and development services over a defined period. We recognize revenue upon delivery of the test results, or over the period in which pharma research and development services are provided, as appropriate.

Contracts for pharma customers are primarily analyzed as multiple-element arrangements given the nature of the service deliverables. For pharma research and development services performed, we are compensated in various ways, including (1) through the reimbursement of costs incurred; (2) through non-refundable regulatory and other developmental milestone payments; and (3) through royalty and sales milestone payments. For some multiple-element arrangements, including our R&D Collaboration agreement with Roche, we will be reimbursed for either all or a portion of the research and development costs incurred. We perform pharma research and development services as part of our normal activities. We record these payments as pharma research and development services revenue in the Consolidated Statements of Operations and Comprehensive Loss, using a proportional performance model over the period in which the unit of accounting is delivered or based on the level of effort expended to date over the total expected effort, whichever is considered the most appropriate measure of performance. The research and development costs incurred by us under these arrangements are included as Research and Development expenses in our Consolidated Statements of Operations and Comprehensive Loss given these costs are related to the development of new services to be owned and offered by us to our customers.

We analyze multiple-element arrangements based on the guidance in FASB ASC Topic 605-25, Revenue Recognition-Multiple-Element Arrangements (“ASC 605-25”). Pursuant to the guidance in ASC 605-25, we evaluate multiple-element arrangements to determine (1) the deliverables included in the arrangement and (2) whether the individual deliverables represent separate units of accounting or whether they must be accounted for as a combined unit of accounting. This evaluation involves subjective determinations and requires management to make judgments about the individual deliverables and whether such deliverables are separable from the other aspects of the contractual relationship. Deliverables are considered separate units of accounting if: (i) the delivered items have value to the customer on a standalone basis and (ii) the arrangement includes a general right of return relative to the delivered items and delivery or performance of the undelivered items is considered probable and substantially within our control. In assessing whether an item has standalone value, we consider factors such as the research, development and commercialization capabilities of a third party and the availability of the associated expertise in the general marketplace. In addition, we consider whether the other party in the arrangement can use the other deliverables for their intended purpose without the receipt of the remaining elements, whether the value of the deliverable is dependent on the undelivered items, and whether there are other vendors that can provide the undelivered elements.

Arrangement consideration that is fixed or determinable is allocated among the separate units of accounting using the relative selling price method. Then, the applicable revenue recognition criteria in ASC 605-25 is applied to each of the separate units of accounting in determining the appropriate period and pattern of recognition. We determine the selling price of a unit of accounting following the hierarchy of evidence prescribed by ASC 605-25. Accordingly, we determine the estimated selling price for units of accounting within each arrangement using vendor-specific objective evidence, or VSOE, of selling price, if available, third-party evidence, or TPE, of selling price if VSOE is not available, or best estimate of selling price, or BEBP, if neither VSOE nor TPE is available. We typically use BEBP to estimate the selling price, since we generally do not have VSOE or TPE of selling price for our units of accounting under multiple-element arrangements. Determining the BEBP for a unit of accounting requires significant judgment. In developing the BEBP for a unit of accounting, we consider applicable market conditions and estimated costs. We

validate the BEBP for units of accounting by evaluating whether changes in the key assumptions used to determine the BEBP will have a significant effect on the allocation of arrangement consideration between multiple units of accounting. We recognize arrangement consideration allocated to each unit of accounting when all of the revenue recognition criteria in ASC 605-25 are satisfied for that particular unit of accounting.

At the inception of an arrangement that includes milestone payments to us, we evaluate whether each milestone is substantive and at risk to both parties on the basis of the contingent nature of the milestone. This evaluation includes an assessment of whether: (i) the consideration is commensurate with either our performance to achieve the milestone or the enhancement of the value of the delivered items as a result of a specific outcome resulting from our performance to achieve the milestone, (ii) the consideration relates solely to past performance, and (iii) the consideration is reasonable relative to all of the deliverables and payment terms within the arrangement. We evaluate factors such as the scientific, clinical, regulatory, commercial, and other risks that must be overcome to achieve the respective milestone and the level of effort and investment required to achieve the respective milestone in making this assessment. There is considerable judgment involved in determining whether a milestone satisfies all of the criteria required to conclude that a milestone is substantive. Generally, once a substantive milestone has been achieved, we will recognize revenue related to that milestone using a proportional performance model over the period which the unit of accounting is delivered or based on the level of effort expended to date over the total expected effort, whichever is considered the most appropriate measure of performance.

Revenue from commercial milestone payments are accounted for as royalties and recorded as revenue upon achievement of the milestone, assuming all other revenue recognition criteria are met.

We also recognize royalty revenue in the period of sale of the related service(s), based on the underlying contract terms, provided that the reported sales are reliably measurable and we have no remaining performance obligations, assuming all other revenue recognition criteria are met. To date, royalty revenue recognized by us has been immaterial.

Cost of Molecular Information Services Revenue and Operating Expenses

We allocate certain overhead expenses, such as rent, utilities, and depreciation to cost of molecular information services revenue and operating expense categories based on headcount and facility usage. As a result, an overhead expense allocation is reflected in cost of revenue and each operating expense category.

Cost of Molecular Information Services Revenue

Cost of molecular information services revenue generally consists of specific reagents, specific consumable lab supplies, and shared costs that are allocated to our molecular information services – our FoundationOne, FoundationOneHeme, FoundationACT and FoundationFocus CDx BRCA tests – either on a direct or indirect basis, resulting in an overall cost for each specific test. The shared costs that are allocated to each test include personnel expenses (comprised of salaries, bonuses, employee benefits and stock-based compensation expenses), depreciation of laboratory equipment and amortization of leasehold improvements, shipping costs, third-party laboratory costs, and certain overhead expenses.

Costs associated with performing tests are recorded as tests are processed. These costs are recorded regardless of whether revenue is recognized with respect to those tests. Because we currently recognize revenue on a cash basis from commercial third-party payors and patients who make co-payments, pay deductibles or pay other amounts that we have been unable to collect from their insurers, the costs of those tests are often recognized in advance of any associated revenues.

Cost of Related-Party Molecular Information Services Revenue from Roche

Cost of Related-party molecular information services revenue from Roche is generally derived by taking the cost per test described above and applying it to each of the FoundationOne, FoundationOneHeme and FoundationACT tests processed for Roche. Costs of Related-party molecular information services revenue from Roche are associated with performing molecular information services for Roche under both the (i) molecular information platform program within our R&D Collaboration Agreement with Roche, and (ii) our Ex-U.S. Commercialization Agreement with Roche. Revenues from tests performed by us under the molecular information platform and the Ex-U.S. Commercialization Agreement are recognized in the Related-party molecular information services from Roche caption within our Consolidated Statements of Operations and Comprehensive Loss.

Selling and Marketing Expenses

Our selling and marketing expenses include costs associated with our sales organization, including our direct sales force and sales management, client services, marketing, reimbursement, and business development personnel who are focused on our biopharmaceutical customers. These expenses consist principally of salaries, commissions, bonuses, employee benefits, travel, and stock-based compensation, as well as marketing and educational activities, and allocated overhead expenses. We expense all selling and marketing costs as incurred.

During the years ended December 31, 2017, 2016, and 2015, our selling and marketing expenses represented approximately 44%, 50%, and 53%, respectively, of our total revenue. We expect our selling and marketing expenses

to continue to increase in absolute dollars as we grow our client service infrastructure, increase our marketing and medical affairs activities to drive further awareness and adoption of our current molecular information services, and any future services we may develop.

General and Administrative Expenses

Our general and administrative expenses include costs for our executive, accounting and finance, legal, corporate information technology, and human resources functions. These expenses consist principally of salaries, bonuses, employee benefits, travel, and stock-based compensation, as well as professional services fees such as consulting, audit, tax, legal and billing fees, general corporate costs, and allocated overhead expenses. We expense all general and administrative expenses as incurred.

We expect that our general and administrative expenses will continue to increase, primarily due to the costs associated with increased infrastructure and headcount. These costs include additional legal and accounting expenses, including ongoing litigation, and an increase in billing costs related to our anticipated increase in revenues.

Research and Development Expenses

Research and development expenses consist primarily of costs incurred for the development of new and enhanced services, immunotherapy biomarker-testing, companion diagnostic development, significant service improvements, clinical trials to evaluate the clinical utility of our services, the development of our FoundationCore knowledgebase, and various technology applications such as FoundationSmartTrials. Costs to develop our technology capabilities are recorded as research and development unless they meet the criteria to be capitalized as internal-use software costs. Our research and development activities include the following costs:

- personnel-related expenses such as salaries, bonuses, employee benefits, and stock-based compensation;
- fees for contractual and consulting services;
- costs to manage and synthesize our medical data and to expand FoundationCore;
- clinical trials;
- laboratory supplies; and
- allocated overhead expenses.

Costs incurred for the performance of pharma research and development services requested by our biopharmaceutical customers, including non-molecular information services costs incurred under the R&D Collaboration Agreement with Roche, are included as research and development expenses in the Consolidated Statements of Operations and Comprehensive Loss, given these costs are related to the development of new services to be owned and offered by us to our customers. Revenues from these services are recognized in the pharma research and development services and related-party pharma research and development services from Roche captions within our Consolidated Statements of Operations and Comprehensive Loss.

Interest (Expense) Income, Net

Interest (expense) income, net includes interest expense and interest income. Interest expense consists primarily of the quarterly commitment fee on the available balance under the Roche Credit Facility and interest expense on outstanding borrowings under the Roche Credit Facility. Interest income is earned on our cash, cash equivalents, and marketable securities.

Other Income

Other income includes the gain on disposal of certain long-lived assets and foreign exchange transactions.

Results of Operations

Comparison of Years Ended December 31, 2017 and 2016

	Year Ended December 31,		Change	
	2017	2016	\$	%
(in thousands, except percentages)				
Statement of Operations Data:				
Revenue:				
Molecular information services	\$91,695	\$60,255	\$31,440	52 %
Related-party molecular information services from Roche	25,458	21,493	3,965	18 %
Pharma research and development services	10,922	13,133	(2,211)	(17)%
Related-party pharma research and development services from Roche	24,828	21,984	2,844	13 %
Total revenue	152,903	116,865	36,038	31 %
Costs and expenses:				
Cost of molecular information services	76,256	52,978	23,278	44 %
Cost of related-party molecular information services from Roche	9,014	3,770	5,244	139 %
Selling and marketing	66,727	57,951	8,776	15 %
General and administrative	70,340	48,611	21,729	45 %
Research and development	91,509	67,371	24,138	36 %
Total costs and expenses	313,846	230,681	83,165	36 %
Loss from operations	(160,943)	(113,816)	(47,127)	41 %
Interest (expense) income, net	(727)	624	(1,351)	(217)%
Other income	204	—	204	100 %
Net loss	\$(161,466)	\$(113,192)	\$(48,274)	43 %
Revenue				

Molecular Information Services

Molecular information services revenue, including Roche related-party revenue, increased to \$117.2 million for the year ended December 31, 2017 from \$81.7 million during the year ended December 31, 2016. Revenue from tests reported to our ordering physicians increased to \$53.2 million for the year ended December 31, 2017 from \$38.1 million for the year ended December 31, 2016. The increase in revenue was partly driven by Medicare payments for FoundationOne for eligible patients with non-small cell lung cancer under the Palmetto LCD, higher test volumes, and an increase in revenue recorded under our Roche Ex-U.S. Commercialization Agreement. Molecular information services revenue from our biopharmaceutical customers increased to \$64.0 million from \$43.6 million for the years ended December 31, 2017 and 2016, respectively, and was driven by increased testing volume from new and existing customers.

Related-party molecular information services revenue from Roche was \$25.5 million and \$21.5 million for the years ended December 31, 2017 and 2016, respectively, the majority of which is revenue earned under the Molecular Information Platform Program.

During the year ended December 31, 2017, we reported a total of 67,375 tests to ordering physicians, including 6,149 FoundationOneHeme tests, 6,281 FoundationACT tests, and 749 FoundationFocus CDxBRCA tests as compared to 43,686 tests reported during the year ended December 31, 2016, including 5,008 FoundationOneHeme tests and 2,351 FoundationACT tests.

The average revenue per comprehensive genomic profiling test for clinical use that met our revenue recognition criteria during the year ended December 31, 2017 was approximately \$2,600, as compared to \$2,900 during the year

ended December 31, 2016. This average revenue per test does not include tests reported under the Roche Ex-U.S. Commercialization Agreement, given that those tests are now reimbursed by Roche at cost plus a portion of the resulting gross margin. This decrease was driven by lower out-of-network payments from commercial third-party payors.

The total number of clinical tests paid, excluding tests performed under the Roche Ex-U.S. Commercialization Agreement, during the year ended December 31, 2017 was 18,831, including 5,174 tests that were reported in prior periods. The total number of clinical tests paid, excluding tests performed under the Roche Ex-U.S. Commercialization Agreement, during the year ended December 31, 2016 was 12,723, including 3,125 tests that were reported in prior periods.

The average revenue per test sold for clinical use that met our revenue recognition criteria excludes tests for which we have not yet recognized revenue. Because we recognize revenue on a cash basis from commercial third-party payors and from patients who make co-payments, pay deductibles, or pay other amounts that we have been unable to collect from their third-party payors because

the payment is not fixed or determinable and collectability is not reasonably assured, and our efforts to obtain payment for individual claims can take a substantial amount of time, there is typically a significant lag between the time the test is reported and the time we actually recognize the revenue from such test. As a result, if we were to include tests for which we have not recognized revenue in our average revenue per test calculation for a particular period, it would imply that we will not receive any revenue for such tests. Despite our lack of broad coverage decisions across large numbers of third-party payors, we have been reasonably successful in securing reimbursement from many commercial third-party payors for tests reported in prior periods.

We delivered the results of 15,587 and 8,622 tests to our biopharmaceutical customers during the years ended December 31, 2017 and 2016, respectively, and the average revenue per test sold was approximately \$3,200 and \$3,700 for the same periods. We expect this average revenue per test for biopharmaceutical customers to remain fairly consistent with prior periods over time with fluctuations primarily resulting from test mix in a given period.

Pharma Research and Development Services

Pharma research and development services revenue, including Roche related-party revenue, increased to \$35.7 million for the year ended December 31, 2017 from \$35.1 million during the year ended December 31, 2016. The increase was primarily driven by the timing of research and development projects with our non-Roche biopharmaceutical customers and the associated recognition of certain regulatory milestones.

Related-party pharma research and development services for Roche includes related-party revenue from Roche of \$24.8 million and \$22.0 million for the years ended December 31, 2017 and 2016, respectively. The increase was driven by the timing of various research and development projects under the Roche R&D Collaboration Agreement.

Cost of Molecular Information Services

Cost of molecular information services revenue, including Roche related-party revenue, increased to \$85.3 million for years ended December 31, 2017 from \$56.7 million for the years ended December 31, 2016. The increase was driven by a 54% increase in tests reported to our ordering physicians, and costs related to our North Carolina laboratory that became operational in the third quarter of 2016. Additional volume led to higher reagent and consumable costs, additional laboratory personnel-related costs, facilities costs, and higher depreciation expense related to new equipment purchases. During the years ended December 31, 2017 and 2016, our total cost of molecular information services revenue represented approximately 73% and 69% of our total molecular information services revenue, respectively.

Cost of related-party molecular information services from Roche increased to \$9.0 million from the year ended December 31, 2017 from \$3.8 million for the year ended December 31, 2016. The costs were driven by testing performed under the Molecular Information Platform Program.

Selling and Marketing Expenses

Selling and marketing expenses increased to \$66.7 million for the year ended December 31, 2017 from \$58.0 million for the year ended December 31, 2016. The increase was primarily due to an increase of \$7.3 million in personnel-related costs for employees in our sales, marketing, client service, and reimbursement departments to support our commercialization efforts and a \$1.4 million increase in consulting and marketing-related costs.

General and Administrative Expenses

General and administrative expenses increased to \$70.3 million for the year ended December 31, 2017 from \$48.6 million for the year ended December 31, 2016. The increase was primarily due to a \$11.0 million combined increase in legal, consulting, and other professional services costs, a \$6.9 million increase in personnel costs to support and

expand our executive, legal, finance, and human resources infrastructure, and a \$3.8 million increase in rent and other facilities costs.

Research and Development Expenses

Research and development expenses increased to \$91.5 million for the year ended December 31, 2017 from \$67.4 million for the year ended December 31, 2016. The increase was primarily attributed to a \$12.9 million increase in personnel-related costs and a \$9.1 million increase in consulting costs.

Interest (Expense) Income, Net

Interest expense was \$1.3 and \$0.1 million for the years ended December 31, 2017 and 2016, respectively. The increase was primarily attributed to a \$1.0 million increase in interest expense and commitment fees on the Roche Credit Facility and \$0.3 million loss on extinguishment of debt due to the write-off of unamortized deferred financing costs in conjunction with the amendment to the Roche Credit Facility. Interest income was \$0.6 million and \$0.7 million for the years ended December 31, 2017 and 2016, respectively.

Other Income

Other income during the year ended December 31, 2017 was \$0.2 million and related to a gain on disposal of certain long-lived assets and foreign exchange transactions.

Comparison of Years Ended December 31, 2016 and 2015

	Year Ended December 31,		Change		
	2016	2015	\$		%
	(in thousands, except percentages)				
Statement of Operations Data:					
Revenue:					
Molecular information services	\$60,255	\$71,766	\$(11,511)	(16))%
Related-party molecular information services from Roche	21,493	13,132	8,361	64	%
Pharma research and development services	13,133	7,993	5,140	64	%
Related-party pharma research and development services from Roche	21,984	312	21,672	6946	%
Total revenue	116,865	93,203	23,662	25	%
Costs and expenses:					
Cost of molecular information services	52,978	36,695	16,283	44	%
Cost of related-party molecular information services from Roche	3,770	2,736	1,034	38	%
Selling and marketing	57,951	49,030	8,921	18	%
General and administrative	48,611	50,614	(2,003)	(4))%
Research and development	67,371	43,883	23,488	54	%
Total costs and expenses	230,681	182,958	47,723	26	%
Loss from operations	(113,816)	(89,755)	(24,061)	27	%
Interest (expense) income, net	624	124	500	403	%
Net loss	\$(113,192)	\$(89,631)	\$(23,561)	26	%
Revenue					

Molecular Information Services

Molecular information services revenue, including Roche related-party revenue, increased to \$81.7 million for the year ended December 31, 2016 from \$84.9 million during the year ended December 31, 2015. Revenue from tests reported to our ordering physicians decreased to \$38.1 million for the year ended December 31, 2016 from \$49.2 million for the year ended December 31, 2015. The decrease in revenue was driven by several factors, including, moving in-network with a large national payor for state IV NSCLC testing, which has resulted in no longer receiving

payments for other indications that were previously paid by this large national payor on a stacked code basis, and in payment delays for the covered indication; a transition from billing certain medical institutions directly to billing their patients' insurance plans, which resulted in fewer tests paid during the period for those patients; a modest revenue decline due to our Ex-U.S. Commercialization Agreement with Roche, under which, beginning on April 7, 2016, international tests are now reimbursed by Roche at a cost plus a portion of resulting gross margin, as compared to the direct-sales, patient pay model under which we had previously been operating international volume; and increased examination of out-of-network claims by commercial third-party payors which resulted in payment delays and fewer tests paid. Molecular information services

revenue from our biopharmaceutical customers increased to \$43.6 million from \$35.7 million for the years ended December 31, 2016 and 2015, respectively, and was driven by increased testing volume from new and existing customers.

Related-party molecular information services revenue from Roche was \$21.5 million and \$13.1 million for the years ended December 31, 2016 and 2015, respectively, the majority of which is revenue earned under the Molecular Information Platform Program.

During the year ended December 31, 2016, we reported 43,686 tests to ordering physicians, including 5,008 FoundationOneHeme tests and 2,351 FoundationACT tests, as compared to 32,998 tests reported during the year ended December 31, 2015, including 3,922 FoundationOneHeme tests.

The average revenue per comprehensive genomic profiling test for clinical use that met our revenue recognition criteria during the year ended December 31, 2016 was approximately \$2,900, as compared to \$3,300 during the year ended December 31, 2015. This average revenue per test does not include tests reported under the Roche Ex-U.S. Commercialization Agreement, given that those tests are now reimbursed by Roche at cost plus a portion of the resulting gross margin. This decrease was driven by lower out-of-network payments from commercial third-party payors.

The total number of clinical tests paid, excluding tests performed under the Roche Ex-U.S. Commercialization Agreement, during the year ended December 31, 2016 was 12,723, including 3,125 tests that were reported in prior periods. The total number of clinical tests paid, excluding tests performed under the Roche Ex-U.S. Commercialization Agreement, during the year ended December 31, 2015 was 15,035, including 2,820 tests that were reported in prior periods.

The average revenue per test sold for clinical use that met our revenue recognition criteria excludes tests for which we have not yet recognized revenue. Because we recognize revenue on a cash basis from commercial third-party payors and from patients who make co-payments, pay deductibles, or pay other amounts that we have been unable to collect from their third-party payors because the payment is not fixed or determinable and collectability is not reasonably assured, and our efforts to obtain payment for individual claims can take a substantial amount of time, there is typically a significant lag between the time the test is reported and the time we actually recognize the revenue from such test. As a result, if we were to include tests for which we have not recognized revenue in our average revenue per test calculation for a particular period, it would imply that we will not receive any revenue for such tests. Despite our lack of broad coverage decisions across large numbers of third-party payors, we have been reasonably successful in securing reimbursement from many commercial third-party payors for tests reported in prior periods. While receipt of payment from third-party payors and patients in respect of these claims is not currently fixed or determinable and collectability is not reasonably assured, we do expect to record revenue in the future for some of the tests reported in this period. However, it is difficult to predict future revenue from the previously reported tests as a result of unpredictable reimbursement payments, physician ordering patterns, continuously developing coverage decisions, and a limited payment history for some services. As a result, we cannot be certain that the average revenue per test sold for clinical use that met our revenue recognition in the future will remain consistent with the average reported above.

We delivered the results of 8,622 and 8,827 tests to our biopharmaceutical customers during the years ended December 31, 2016 and 2015, respectively, and the average revenue per test sold was approximately \$3,700 for each of the years ended December 31, 2016 and 2015.

Pharma Research and Development Services

Pharma research and development services revenue, including Roche related-party revenue, increased to \$35.1 million for the year ended December 31, 2016 from \$8.3 million during the year ended December 31, 2015. The increase was primarily driven by revenue earned under the Roche R&D Collaboration Agreement.

Related-party pharma research and development services for Roche includes related-party revenue from Roche of \$22.0 million and \$0.3 million for the years ended December 31, 2016 and 2015, respectively. The increase was driven by revenue from the reimbursement of research and development, or R&D, costs and milestones achieved under the CDx Development and Immunotherapy Testing Development.

Cost of Molecular Information Services

Total cost of revenue, including the cost of Roche related-party revenue, increased to \$56.7 million for the year ended December 31, 2016 from \$39.4 million for the year ended December 31, 2015. This increase was driven by increasing test volumes from our ordering physicians, costs incurred at our North Carolina laboratory, and an increase in the write-down for inventory excess and obsolescence of \$1.0 million. Additional volume led to higher reagent and consumable costs, additional laboratory personnel-related costs, facilities costs, and higher depreciation expense related to new equipment purchases. During the years ended December 31, 2016 and 2015, our total cost of revenue represented approximately 49% and 42% of our total revenue, respectively. We expect to make additional investments in personnel, infrastructure, and systems to scale our laboratory operations to meet future anticipated demand.

Cost of related-party molecular information services from Roche increased to \$3.8 million from the year ended December 31, 2016 from \$2.7 million for the year ended December 31, 2015. The costs were driven by testing performed under the Molecular Information Platform Program.

Selling and Marketing Expenses

Selling and marketing expenses increased to \$58.0 million for the year ended December 31, 2016 from \$49.0 million for the year ended December 31, 2015. The increase was primarily due to an increase of \$8.0 million in personnel-related costs for employees in our sales, marketing, client service, and reimbursement departments to support our commercialization efforts, and a \$2.1 million increase in consulting costs, partially offset by a \$1.1 million decrease in marketing-related and other facilities costs.

General and Administrative Expenses

General and administrative expenses decreased to \$48.6 million for the year ended December 31, 2016 from \$50.6 million for the year ended December 31, 2015. The decrease was primarily due to the one-time \$14.4 million expense for advisor fees related to closing the Roche transaction recorded during the year ended December 31, 2015, partially offset by a \$7.8 million increase in personnel costs to support and expand our legal, finance, and human resources infrastructure, a \$2.5 million increase in rent and other facilities costs, and a \$2.1 million combined increase in legal, consulting, and other professional services costs.

Research and Development Expenses

Research and development expenses increased to \$67.4 million for the year ended December 31, 2016 from \$43.9 million for the year ended December 31, 2015. The increase was primarily related to costs incurred for new product development, including FoundationFocus CDx BRCA, and increased analytical validation to support our universal companion diagnostic and other companion diagnostic work. The increase was attributed to a \$9.8 million increase in employee and contractor-related expenses, a \$5.7 million increase in laboratory supply costs, including reagents utilized in research and development activities, a \$3.4 million increase in consulting costs, a \$2.5 million increase in laboratory management and facilities costs, and a \$2.1 million increase in clinical trial expenses.

Interest Income (Expense), Net

Interest income was \$0.7 million and \$0.1 million for the years ended December 31, 2016 and 2015, respectively. The increase in interest income was due to interest earned on a larger balance actively invested in 2016. Interest expense was \$0.1 million for the year ended December 31, 2016 and was primarily related to the amortization of deferred financing costs and the commitment fee on the available balance under the Roche Credit Facility.

Liquidity and Capital Resources

We have incurred losses and negative cash flows from operations since our inception in November 2009, and as of December 31, 2017, we had an accumulated deficit of \$506.3 million.

We have funded our operations principally from the sale of common stock, preferred stock, borrowings under our credit facilities, and revenue from molecular information services and pharma research and development services. Since we have received a limited number of coverage decisions for our existing tests from commercial third-party payors and have a limited history of collecting claims, we currently recognize revenue on a cash basis from most commercial third-party payors. We will continue to make requests for payment and/or appeal payment decisions made by commercial third-party payors. In addition, although we submit for reimbursement to Medicare when appropriate, to date, we have received payment on a small portion of Medicare claims. If commercial third-party payors or government payors agree to pay us for any of these services in the future, we would recognize revenue for any such

tests in the period in which our revenue recognition criteria are met. As of December 31, 2017, we had cash and cash equivalents of approximately \$71.4 million.

We have occasionally received letters from third parties inviting us to take licenses under, or alleging that we infringe, their patents. While any potential infringement claims could pose an uncertainty for our business, no notice of alleged infringement that we have received to date has led to a lawsuit or a license, and, as a result, no such claim has had an impact on our results of operations.

Pursuant to the Roche Credit Facility, which was amended on July 31, 2017, during the four-year period ending August 2, 2020, or the Draw Period, we may borrow up to \$200 million. As of December 31, 2017, we have \$60 million in borrowings outstanding, \$90 million currently available, and \$50 million available upon the achievement of certain milestones. During the Draw Period, we are paying Roche Finance a quarterly commitment fee of 0.4% on the available balance of the Roche Credit Facility. Loans made under the Roche Credit Facility bear interest at 6.5% per annum. We shall pay Roche Finance, quarterly during the Draw Period and for six months thereafter, accrued interest on the outstanding principal of the loans. Beginning six months after the Draw Period and for five

years thereafter, we shall pay Roche Finance quarterly equal payments of principal, with accrued interest, until maturity of the Roche Credit Facility on February 2, 2026.

Cash Flows

The following table sets forth the primary sources and uses of cash for each of the periods set forth below:

	Year Ended December 31,		
	2017	2016	2015
	(in thousands)		
Net cash used in operating activities	\$(120,991)	\$(67,167)	\$(63,726)
Net cash provided by (used in) investing activities	62,826	12,688	(140,717)
Net cash provided by financing activities	65,949	333	250,126
Effect of exchange rate changes on cash and cash equivalents	3	—	—
Net increase (decrease) in cash and cash equivalents	7,787	(54,146)	45,683
Cash and cash equivalents at beginning of period	63,617	117,763	72,080
Cash and cash equivalents at end of period	\$71,404	\$63,617	\$117,763

Operating Activities

Net cash used in operating activities in all periods resulted primarily from our net losses adjusted for non-cash charges and changes in components of working capital. The net cash used in operating activities was \$121.0 million for year ended December 31, 2017 compared to \$67.2 million for the year ended December 31, 2016. The increase in cash used in operating activities was driven primarily by an increase in net loss of \$48.3 million and a decrease in working capital of \$10.5 million, offset by an increase in stock-based compensation expense of \$2.7 million and a \$2.6 million increase in depreciation and amortization expense.

The net cash used in operating activities was \$67.2 million for the year ended December 31, 2016 compared to \$63.7 million for the year ended December 31, 2015. The increase in cash used in operating activities was driven primarily by an increase in net loss of \$23.6 million, partially offset by an increase in stock-based compensation expense of \$8.3 million, and increase in working capital of \$6.5 million, and an increase in depreciation and amortization expense of \$5.3 million.

Investing Activities

Net cash provided by investing activities for the year ended December 31, 2017 was \$62.8 million and consisted of \$84.4 million in proceeds received from maturities of marketable securities, partially offset by \$15.7 million in purchases of property and equipment, \$5.0 million in purchases of marketable securities and other investments, and \$0.9 million in deposits securing collateral letters of credit issued in connection with our operating leases. Net cash provided by investing activities for the year ended December 31, 2016 was \$12.7 million and consisted of proceeds from the maturities of marketable securities of \$141.0 million, partially offset by purchases of marketable securities and other investments of \$107.5 million, and purchases of property and equipment of \$20.9 million. Net cash used in investing activities for the year ended December 31, 2015 was \$140.7 million and consisted of purchases of marketable securities of \$114.8 million, purchases of property and equipment of \$25.4 million, and an increase in restricted cash of \$0.5 million.

Financing Activities

Net cash provided by financing activities was \$66.0 million for the year ended December 31, 2017 and consisted of \$60 million in borrowings under the Roche Credit Facility and \$6.0 million in proceeds received from the exercise of stock options. Net cash provided by financing activities for the year ended December 31, 2016 was \$0.3 million and consisted of \$0.6 million of proceeds received from the exercise of stock options during the period, partially offset by

\$0.3 million in cash for debt issuance costs related to the Roche Credit Facility. Net cash provided by financing activities for the year ended December 31, 2015 was \$250.1 million and consisted of \$245.4 million of proceeds received from the sale and issuance of common stock to Roche, net of issuance costs, as well as \$4.7 million from the exercise of stock options during the period.

Operating Capital Requirements

We expect to incur additional operating losses in the near future and our operating expenses will increase as we seek regulatory approval of certain services, scale our technology infrastructure, expand our sales force, increase our marketing efforts to drive market adoption of our molecular information services, innovate our molecular information platform, and develop new service offerings. Our liquidity requirements have consisted of, and will continue to consist of, selling and marketing expenses, research and development expenses, capital expenditures, working capital and general corporate expenses. If demand for our services continues to increase, we anticipate that our capital expenditure requirements will also increase in order to build additional capacity. We expect that our planned

expenditures will be funded from our ongoing operations, from our existing cash and cash equivalents, and borrowings under the Roche Credit Facility.

In April 2015, the Roche transaction was consummated, and we received \$250.0 million in gross proceeds from the sale of 5,000,000 shares of our common stock to Roche at a price of \$50.00 per share. On July 31, 2017, we amended the Roche Credit Facility. Pursuant to the Roche Credit Facility, as amended, during the Draw Period, we may borrow up to \$200 million. We have currently borrowed \$60 million, have immediate access to an additional \$90 million, and have access to \$50 million upon the achievement of certain milestones. During the Draw Period, we shall pay Roche Finance a quarterly commitment fee of 0.4% on the available balance of the Roche Credit Facility. Loans made under the Roche Credit Facility bear interest at 6.5% per annum. We shall pay Roche Finance, quarterly during the Draw Period and for six months thereafter, accrued interest on the outstanding principal of the loans. Beginning six months after the Draw Period and for five years thereafter, we shall pay Roche Finance quarterly equal payments of principal, with accrued interest, until maturity of the Roche Credit Facility on February 2, 2026. Based on our current business plan, we believe our cash and cash equivalents as of December 31, 2017, the availability of borrowings under the Roche Credit Facility, and anticipated cash flows from operations will be sufficient to meet our anticipated cash requirements for a period of one year after the date the financial statements are issued. We may consider raising additional capital to pursue strategic investments or for other reasons, subject to certain consent rights of Roche contained in the Investor Rights Agreement and the Roche Credit Facility. In the future, we expect our operating and capital expenditures to increase as we increase our headcount, expand our selling and marketing activities and continue to invest in new service offerings. If sales of our services grow, we expect our accounts receivable balance to increase. Any increase in accounts payable and accrued expenses may not completely offset increases in accounts receivable, which could result in greater working capital requirements.

If our available cash balances, anticipated cash flow from operations, and available borrowings are insufficient to satisfy our liquidity requirements, including because of lower demand for our services, lower than currently expected rates of reimbursement from commercial third-party payors and government payors, increased competition from other providers of molecular diagnostic tests or other risks described in Part I, Item 1A. "Risk Factors" in this Annual Report, we may seek to sell common or preferred equity or convertible debt securities, enter into another credit facility or another form of third-party funding. The sale of equity and convertible debt securities may result in dilution to our stockholders and those securities may have rights senior to those of our common stock. If we raise additional funds through the issuance of equity, convertible debt securities or other debt financing, these securities or other debt could contain covenants that would restrict our operations, and certain of these transactions will be subject to the prior consent of Roche as set forth in the Investor Rights Agreement and the Roche Credit Facility. Any other third-party funding arrangement could require us to relinquish valuable rights. We may require additional capital beyond our currently anticipated amounts. Additional capital may not be available on reasonable terms, or at all.

These estimates are forward-looking statements and involve risks and uncertainties and actual results could vary materially and negatively as a result of a number of factors, including the factors discussed in Part I, Item 1A. "Risk Factors" in this Annual Report. We have based our estimates on assumptions that may prove to be wrong and we could utilize our available capital resources sooner than we currently expect. If we cannot expand our operations or otherwise capitalize on our business opportunities because we lack sufficient capital, our business, financial condition, and results of operations could be materially adversely affected.

Contractual Obligations and Commitments

The following table summarizes our principal contractual obligations at December 31, 2017.

		2019		
Total	2018	-2020	2021-2022	Thereafter

	(in thousands)				
Operating lease obligations ⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾⁽⁵⁾	\$70,598	\$12,218	\$24,497	\$20,641	\$13,242
Long-term debt obligations ⁽⁶⁾	60,000	—	—	21,000	39,000
Interest ⁽⁶⁾	24,519	4,218	8,780	6,874	4,647
Purchase obligations ⁽⁷⁾	11,743	11,743	—	—	—
Total	\$166,860	\$28,179	\$33,277	\$48,515	\$56,889

⁽¹⁾On May 1, 2017, we became the sole tenant of the Headquarters Building at 150 Second Street, Cambridge, Massachusetts, leasing approximately 123,210 square feet under an operating lease that expires in April 2024.

⁽²⁾On April 21, 2017, we leased 1,975 square feet for office space in Palo Alto, California under an operating lease that expires in April 2022.

⁽³⁾In March 2015, we leased 38,411 square feet for office space in Cambridge, Massachusetts under an operating lease that expires in August 2020.

⁽⁴⁾In April 2016, we leased 48,236 square feet for office and laboratory space in Research Triangle Park, North Carolina under an operating lease that expires in January 2022.

⁽⁵⁾In September 2016, we leased office and laboratory space in Penzberg, Germany under an operating lease that expires in September 2021.

⁽⁶⁾We shall pay Roche Finance a quarterly commitment fee of 0.4% on the available balance of the Roche Credit Facility. Loans made under the Roche Credit Facility bear interest at 6.5% per annum. We shall pay Roche Finance, quarterly during the Draw Period and for six months thereafter, accrued interest on the outstanding principal of the loans. Beginning six months after the Draw Period and for five years thereafter, we shall pay Roche Finance quarterly equal payments of principal, with accrued interest, until maturity of the Roche Credit Facility on

February 2, 2026. As of December 31, 2017, we had \$60 million in borrowings outstanding under the Roche Credit Facility. For further details on the Roche Credit Facility, refer to footnote 7 in the Notes to the Condensed Consolidated Financial Statements.

(7) In July 2013, we entered into a five-year supply, service and support agreement with Illumina for Illumina to provide products and services that support and can be used for the gene sequencing component of our molecular testing activities. During the remaining term of this supply agreement, the actual amount of the purchase obligation shall be determined during each period set forth in the table but will not be lower than the amounts set forth in the table. The actual amount of the purchase obligation shall be based upon a percentage of the forecasts we submit for Illumina product and services.

Net Operating Loss Carryforwards

We had deferred tax assets of approximately \$159.1 million and no deferred tax liabilities as of December 31, 2017. The deferred tax assets have been fully offset by a valuation allowance due to uncertainties surrounding our ability to realize these tax benefits. The deferred tax assets are primarily composed of federal and state tax net operating loss, or NOL, carryforwards and research and development tax credit carryforwards. As of December 31, 2017, we had federal NOL carryforwards of approximately \$418.7 million and state NOL carryforwards of \$363.6 million available to reduce future taxable income, if any. The net operating loss carryforwards expire at various times beginning in 2030 for federal purposes and 2019 for state purposes. In general, if we experience a greater than 50 percent aggregate change in ownership of certain significant stockholders over a three-year period, or a Section 382 ownership change, utilization of our pre-change NOL carryforwards are subject to an annual limitation under Section 382 of the Internal Revenue Code of 1986, as amended, and similar state laws. Such limitations may result in expiration of a portion of the NOL carryforwards before utilization and may be substantial. Following the Roche transaction, as discussed in detail throughout this Annual Report on Form 10-K, we conducted a Section 382 study covering the period from corporate inception through April 7, 2015, which was the closing date of the Roche transaction. This study concluded that limitations on our NOL carryforwards are not restrictive, with the exception of approximately \$1.5 million of pre-March 31, 2010 NOLs.

Off-Balance Sheet Arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

Application of Critical Accounting Policies

We have prepared our consolidated financial statements in accordance with accounting principles generally accepted in the United States. Our preparation of these consolidated financial statements requires us to make estimates, assumptions, and judgments that affect the reported amounts of assets, liabilities, expenses, and related disclosures at the date of the consolidated financial statements, as well as revenue and expenses recorded during the reporting periods. 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 consolidated financial statements included later in this Annual Report on Form 10-K, we believe the following accounting policies to be critical to the judgments and estimates used in the preparation of our consolidated financial statements.

Revenue Recognition

The Company derives revenue from the provision of molecular information services provided to its ordering physicians and biopharmaceutical customers, as well as from pharma research and development services provided to its biopharmaceutical customers. Molecular information services include molecular profiling and the delivery of other molecular information derived from the Company's platform. Pharma research and development services include the development of new platforms and information solutions, including companion diagnostic development. The Company currently receives payments from commercial third-party payors, Medicare, certain hospitals and cancer centers with which it has direct-bill relationships, individual patients, and its biopharmaceutical customers.

Through December 31, 2017, the Company recognized revenue in accordance with FASB ASC Topic 605, Revenue Recognition ("ASC 605"). The Company recognizes revenue when all of the following criteria are met: (i) persuasive evidence of an arrangement exists; (ii) delivery has occurred; (iii) the fee is fixed or determinable; and (iv) collectability is reasonably assured. Criterion (i) is satisfied when the Company has an arrangement or contract in place. Criterion (ii) is satisfied when the Company delivers a report to the ordering physician or the biopharmaceutical customer. Determination of criteria (iii) and (iv) are based on management's judgments regarding whether the fee is fixed or determinable, and whether the collectability of the fee is reasonably assured.

The Company recognizes revenue on a cash basis when it cannot conclude that criteria (iii) and (iv) have been met. The Company currently recognizes revenue on a cash basis from sales of its molecular information services to certain clinical customers, including payments received from commercial third-party payors, Medicare, and from patients who make co-payments, pay deductibles or from other amounts that the Company has been unable to collect from third-party payors. The Company uses judgment in its assessment of whether the fee is fixed or determinable and whether collectability is reasonably assured in determining when to recognize revenue in the future as it continues to gain payment experience with third-party payors and patients. Accordingly, the Company expects to recognize revenue on a cash basis for these clinical customers until it has sufficient history to reliably estimate payment patterns. The Company's molecular information services are delivered electronically, and as such there are no shipping and handling fees incurred by the Company or billed to customers. The Company's molecular information services are exempt from state sales taxation due to the nature of the services. As a result, the Company does not charge customers state sales tax.

The Company recognizes revenue from the sale of its molecular information services to clinical customers, including certain hospitals, cancer centers, other institutions and patients, at the time results of the test are reported to physicians, if criteria (i) through (iv) above are met.

Revenue from sales of the Company's services to biopharmaceutical customers are based on a negotiated price per test or on the basis of an agreement to provide certain testing volume, data access, or pharma research and development services over a defined period. The Company recognizes revenue upon delivery of the test results, or over the period in which pharma research and development services are provided, as appropriate.

The Company performs pharma research and development services for its biopharmaceutical customers utilizing its molecular information platform. Contracts for pharma customers are primarily analyzed as multiple-element arrangements given the nature of the service deliverables. For pharma research and development services performed, the Company is compensated in various ways, including (1) through the reimbursement of costs incurred; (2) through non-refundable regulatory and other developmental milestone payments; and (3) through royalty and sales milestone payments. For some multiple-element arrangements, including the R&D Collaboration Agreement with Roche, the Company will be reimbursed for either all or a portion of the research and development costs incurred. The Company performs pharma research and development services as part of its normal activities. The Company records these payments as Pharma research and development services revenue in the Consolidated Statements of Operations and Comprehensive Loss, using a proportional performance model over the period which the unit of accounting is delivered or based on the level of effort expended to date over the total expected effort, whichever is considered the most appropriate measure of performance. The research and development costs incurred by the Company under these arrangements are included as Research and development expenses in the Company's Consolidated Statements of Operations and Comprehensive Loss given these costs are related to the development of new services to be owned and offered by the Company to its customers.

The Company analyzes multiple-element arrangements based on the guidance in FASB ASC Topic 605-25, Revenue Recognition-Multiple-Element Arrangements ("ASC 605-25"). Pursuant to the guidance in ASC 605-25, the Company evaluates multiple-element arrangements to determine (1) the deliverables included in the arrangement and (2) whether the individual deliverables represent separate units of accounting or whether they must be accounted for as a combined unit of accounting. This evaluation involves subjective determinations and requires management to make judgments about the individual deliverables and whether such deliverables are separable from the other aspects of the contractual relationship. Deliverables are considered separate units of accounting if: (i) the delivered items have value to the customer on a standalone basis and (ii) the arrangement includes a general right of return relative to the delivered items and delivery or performance of the undelivered items is considered probable and substantially in the control of the Company. In assessing whether an item has standalone value, the Company considers factors such as the research, development and commercialization capabilities of a third party and the availability of the associated expertise in the general marketplace. In addition, the Company considers whether the other party in the arrangement can use the other deliverables for their intended purpose without the receipt of the remaining elements, whether the

value of the deliverable is dependent on the undelivered items, and whether there are other vendors that can provide the undelivered elements.

Arrangement consideration that is fixed or determinable is allocated among the separate units of accounting using the relative selling price method. Then, the applicable revenue recognition criteria in ASC 605-25 is applied to each of the separate units of accounting in determining the appropriate period and pattern of recognition. The Company determines the selling price of a unit of accounting following the hierarchy of evidence prescribed by ASC 605-25. Accordingly, the Company determines the estimated selling price for units of accounting within each arrangement using vendor-specific objective evidence (“VSOE”) of selling price, if available, third-party evidence (“TPE”) of selling price if VSOE is not available, or best estimate of selling price (“BESP”) if neither VSOE nor TPE is available. The Company typically uses BESP to estimate the selling price, since it generally does not have VSOE or TPE of selling price for its units of accounting under multiple-element arrangements. Determining the BESP for a unit of accounting requires significant judgment. In developing the BESP for a unit of accounting, the Company considers applicable market conditions and estimated costs. The Company validates the BESP for units of accounting by evaluating whether changes in the key assumptions used to determine the BESP will have a significant effect on the allocation of arrangement consideration between multiple units of accounting. The Company recognizes arrangement consideration allocated to each unit of accounting when all of the revenue recognition criteria in ASC 605-25 are satisfied for that particular unit of accounting.

At the inception of an arrangement that includes milestone payments to the Company, the Company evaluates whether each milestone is substantive and at risk to both parties on the basis of the contingent nature of the milestone. This evaluation includes an assessment of whether: (i) the consideration is commensurate with either the Company's performance to achieve the milestone or the enhancement of the value of the delivered items as a result of a specific outcome resulting from the Company's performance to achieve the milestone, (ii) the consideration relates solely to past performance, and (iii) the consideration is reasonable relative to all of the deliverables and payment terms within the arrangement. The Company evaluates factors such as the scientific, clinical, regulatory, commercial, and other risks that must be overcome to achieve the respective milestone and the level of effort and investment required to achieve the respective milestone in making this assessment. There is considerable judgment involved in determining whether a milestone satisfies all of the criteria required to conclude that a milestone is substantive. Generally, once a substantive milestone has been achieved, the Company will recognize revenue related to that milestone using a proportional performance model over the period which the unit of accounting is delivered or based on the level of effort expended to date over the total expected effort, whichever is considered the most appropriate measure of performance. Revenue from commercial milestone payments are accounted for as royalties and recorded as revenue upon achievement of the milestone, assuming all other revenue recognition criteria are met.

The Company also recognizes royalty revenue in the period of sale of the related service(s), based on the underlying contract terms, provided that the reported sales are reliably measurable and the Company has no remaining performance obligations, assuming all other revenue recognition criteria are met. To date, royalty revenue recognized by the Company has been immaterial.

For some multiple-element arrangements, we are reimbursed for either all or a portion of the research and development costs incurred. We perform research and development services as part of our revenue activities and, therefore, believe such activities are a part of our primary business. Therefore, we record these reimbursements as revenue in the statement of operations using a proportional performance model over the period which the unit of accounting is delivered or based on the level of effort expended to date over the total expected effort, whichever is considered the most appropriate measure of performance.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market Risk

Foreign Currency Exchange Risk

Our results of operations are subject to foreign currency exchange rate fluctuations due to the global nature of our operations. We have operations in the U.S. and Europe. As a result, our financial position, results of operations and cash flows can be affected by market fluctuations in foreign exchange rates, primarily with respect to the Euro.

While the financial results of our global activities are reported in U.S. dollars, the functional currency for our foreign subsidiary is its respective local currency. Fluctuations in the foreign currency exchange rate of the country in which we do business will affect our operating results, often in ways that are difficult to predict.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Our consolidated financial statements, together with the reports of our independent registered public accounting firms, appear at pages F-1 through F-31 of this Annual Report on Form 10-K for the year ended December 31, 2017.

ITEM 9. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) are designed only to provide reasonable assurance that they will meet their objectives. Under the supervision and with the participation of

our management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness, as of December 31, 2017, of the design and operation of our disclosure controls and procedures, as such term is defined in Exchange Act Rules 13a-15(e) and 15d-15(e). Based on this evaluation, our principal executive officer and principal financial officer have concluded that, as of such date, our disclosure controls and procedures are effective to ensure that information required to be disclosed by us in our Exchange Act reports is recorded, processed, summarized, and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as such term is defined in Exchange Act Rule 13a-15(f) or 15d-15(d). Our internal control system was designed to provide reasonable assurance to our management and our Board regarding the preparation and fair presentation of published financial statements. All internal control systems, no matter how well designed have inherent limitations. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation. Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2017. In making this assessment, our management used the criteria set forth in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission in 2013 (COSO criteria). Based on this assessment, management concluded that our internal control over financial reporting was effective as of December 31, 2017. This Annual Report on Form 10-K does not include an attestation report of our independent registered public accounting firm due to a transition period established by rules of the Securities and Exchange Commission for newly public companies.

Changes in Internal Control Over Financial Reporting

During the year ended December 31, 2017, there were no changes in our internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15(d)-15(f) promulgated under the Exchange Act, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9A. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required under this item is incorporated herein by reference to the Company's definitive proxy statement to be filed in connection with its annual stockholder meeting pursuant to Regulation 14A, which proxy statement will be filed with the SEC not later than 120 days after the close of the Company's fiscal year ended December 31, 2017.

ITEM 11. EXECUTIVE COMPENSATION

The information required under this item is incorporated herein by reference to the Company's definitive proxy statement to be filed in connection with its annual stockholder meeting pursuant to Regulation 14A, which proxy statement will be filed with the SEC not later than 120 days after the close of the Company's fiscal year ended December 31, 2017.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required under this item is incorporated herein by reference to the Company's definitive proxy statement to be filed in connection with its annual stockholder meeting pursuant to Regulation 14A, which proxy statement will be filed with the SEC not later than 120 days after the close of the Company's fiscal year ended December 31, 2017.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required under this item is incorporated herein by reference to the Company's definitive proxy statement to be filed in connection with its annual stockholder meeting pursuant to Regulation 14A, which proxy statement will be filed with the SEC not later than 120 days after the close of the Company's fiscal year ended December 31, 2017.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required under this item is incorporated herein by reference to the Company's definitive proxy statement to be filed in connection with its annual stockholder meeting pursuant to Regulation 14A, which proxy statement will be filed with the SEC not later than 120 days after the close of the Company's fiscal year ended December 31, 2017.

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a) 1. Consolidated Financial Statements.

For a list of the consolidated financial statements included herein, see Index on page F-1 of this report.

2. Financial Statement Schedules.

All required information is included in the financial statements or notes thereto.

3. List of Exhibits.

See the Exhibit Index in Item 15(b) below.

(b)Exhibit Index.

Exhibit

No. Exhibit Index

- 2.1 Transaction Agreement, by and between the Company and Roche Holdings, Inc., dated January 11, 2015 (incorporated by reference to Exhibit 2.1 of the Company's Form 8-K filed on January 12, 2015)
- 3.1 Seventh Amended and Restated Certificate of Incorporation of the Company (incorporated by reference to Exhibit 3.1 of the Company's Form 8-K filed on April 7, 2015)
- 3.2 Amended and Restated Bylaws of the Company (incorporated by reference to Exhibit 3.2 of the Company's Form 8-K filed on October 2, 2013)
- 4.1 Form of Common Stock certificate of the Company (incorporated by reference to Exhibit 4.1 to the Company's Registration Statement on Form S-1/A (File No. 333-190226) filed on September 12, 2013)

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- 4.2 Second Amended and Restated Investors' Rights Agreement, by and between the Company and the Investors named
- therein, dated as of June 20, 2013 (incorporated by reference to Exhibit 4.3 to the Company's Registration Statement on Form S-1 (File No. 333-190226) filed on July 29, 2013)
- 4.3 Amendment to Second Amended and Restated Investors' Rights Agreement, by and between the Company and the Investors named therein, dated January 11, 2015 (incorporated by reference to Exhibit 4.2 of the Company's Form 8-K filed on January 12, 2015)
- 4.4 Investor Rights Agreement, by and between the Company and Roche Holdings, Inc., dated January 11, 2015 (incorporated by reference to Exhibit 4.1 of the Company's Form 8-K filed on January 12, 2015)
- 10.1† Amended and Restated 2010 Stock Incentive Plan and forms of agreements thereunder (incorporated by reference to Exhibit 10.1 to the Company's Registration Statement on Form S-1 (File No. 333-190226) filed on July 29, 2013)
- 10.2† 2013 Stock Option and Incentive Plan and forms of agreements thereunder (incorporated by reference to Exhibit 10.2 to the Company's Registration Statement on Form S-1/A (File No. 333-190226) filed on September 12, 2013)
- 10.3† Executive Employee Offer Letter issued by the Company to Michael J. Pellini, dated as of September 9, 2013 (incorporated by reference to Exhibit 10.3 to the Company's Registration Statement on Form S-1/A (File No. 333-190226) filed on September 12, 2013)
- 10.4† Executive Employee Offer Letter issued by the Company to Robert W. Hesslein, dated as of March 7, 2013 (incorporated by reference to Exhibit 10.5 to the Company's Registration Statement on Form S-1 (File No. 333-190226) filed on July 29, 2013)
- 10.5† Executive Employee Offer Letter issued by the Company to Jason Ryan, dated as of March 7, 2013 (incorporated by reference to Exhibit 10.6 to the Company's Registration Statement on Form S-1 (File No. 333-190226) filed on July 29, 2013)
- 10.6† Executive Employee Offer Letter issued by the Company to Steven J. Kafka, dated as of May 21, 2013, as amended (incorporated by reference to Exhibit 10.7 to the Company's Registration Statement on Form S-1/A (File No. 333-190226) filed on September 12, 2013)
- 10.7 Form of Indemnification Agreement, to be entered into between the Company and its directors and officers (incorporated by reference to Exhibit 10.8 to the Company's Registration Statement on Form S-1/A (File No. 333-190226) filed on August 16, 2013)
- 10.8 Lease, by and between the Company and 150 Second Street, LLC, dated as of February 4, 2013 (incorporated by reference to Exhibit 10.10 to the Company's Registration Statement on Form S-1 (File No. 333-190226) filed on July 29, 2013)
- 10.9 Lease, by and between the Company and 150 Second Street, LLC, dated as of March 27, 2013 (incorporated by reference to Exhibit 10.11 to the Company's Registration Statement on Form S-1 (File No. 333-190226) filed on July 29, 2013)
- 10.10#

- Supply and Support Agreement, by and between the Company and Illumina, Inc., dated as of July 25, 2013 (incorporated by reference to Exhibit 10.13 to the Company's Registration Statement on Form S-1/A (File No. 333-190226) filed on August 2, 2013)
- 10.11# First Amendment to Supply and Support Agreement, by and between the Company and Illumina, Inc., dated as of October 1, 2016 (incorporated by reference to Exhibit 10.24 of the Company's Form 10-K filed on March 3, 2017)
- 10.12# Second Amendment to Supply and Support Agreement, by and between the Company and Illumina, Inc., dated as of April 11, 2017 (incorporated by reference to Exhibit 10.1 of the Company's Form 10-Q filed on August 1, 2017)
- 10.13† Executive Employee Offer Letter issued by the Company to Vincent A. Miller, dated as of August 1, 2011, as amended (incorporated by reference to Exhibit 10.15 to the Company's Registration Statement on Form S-1/A (File No. 333-190226) filed on September 12, 2013)
- 10.14† 2013 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.16 to the Company's Registration Statement on Form S-1/A (File No. 333-190226) filed on September 12, 2013)
- 10.15 First Amendment to Lease, by and between the Company and 150 Second Street, LLC, dated November 27, 2013 (incorporated by reference to Exhibit 10.1 of the Company's Form 8-K filed on December 4, 2013)
- 10.16 Second Amendment to Lease, by and between the Company and ARE-MA REGION NO. 50, LLC, dated June 30, 2014 (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on July 2, 2014)
- 10.17 Third Amendment to Lease, by and between the Company and ARE-MA Region No. 50, LLC, dated September 30, 2016 (incorporated by reference to Exhibit 10.1 of the Company's Form 8-K filed on October 5, 2016)
- 10.18 Consent to Assignment, by and among ARE-MA Region No. 50, LLC, bluebird bio, Inc., and the Company dated September 30, 2016 (incorporated by reference to Exhibit 10.2 of the Company's Form 8-K filed on October 5, 2016)

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- 10.19 Assignment and Assumption of Lease, by and between the Company and bluebird bio, Inc., dated September 30, 2016 (incorporated by reference to Exhibit 10.3 of the Company's Form 8-K filed on October 5, 2016)
- 10.20 Tax Sharing Agreement, by and between the Company and Roche Holdings, Inc., dated January 11, 2015 (incorporated by reference to Exhibit 10.1 of the Company's Form 8-K filed on January 12, 2015)
- 10.21# Collaboration Agreement, by and among the Company, F. Hoffman-La Roche Ltd and Hoffman-La Roche Inc., dated January 11, 2015 (incorporated by reference to Exhibit 10.2 of the Company's Form 8-K/A filed on August 24, 2015)
- 10.22# First Amendment to Collaboration Agreement, by and among the Company, F. Hoffman-La Roche Ltd and Hoffman-La Roche Inc., dated April 6, 2016 (incorporated by reference to Exhibit 10.2 of the Company's Form 10-Q filed on August 3, 2016).
- 10.23# Second Amendment to Collaboration Agreement, by and among the Company, F. Hoffman-La Roche Ltd and Hoffman-La Roche Inc., dated June 16, 2016 (incorporated by reference to Exhibit 10.3 of the Company's Form 10-Q filed on August 3, 2016)
- 10.24# Third Amendment to Collaboration Agreement, by and among the Company, F. Hoffmann-La Roche Ltd and Hoffman-La Roche Inc., dated July 25, 2016 (incorporated by reference to Exhibit 10.2 of the Company's Form 10-Q filed on November 2, 2016)
- 10.25# Fourth Amendment to Collaboration Agreement, by and among the Company, F. Hoffmann-La Roche Ltd and Hoffman-La Roche Inc., dated December 20, 2016 (incorporated by reference to Exhibit 10.24 of the Company's Form 10-K filed on March 3, 2017)
- 10.26# Fifth Amendment to Collaboration Agreement, by and among the Company, F. Hoffmann-La Roche Ltd and Hoffman-La Roche Inc., dated September 8, 2017 (incorporated by reference to Exhibit 10.1 of the Company's Form 8-K filed on September 13, 2017)
- 10.27*# Sixth Amendment to Collaboration Agreement, by and among the Company, F. Hoffmann-La Roche Ltd and Hoffman-La Roche Inc., dated November 1, 2017
- 10.28# Ex-U.S. Commercialization Agreement, by and between the Company and F. Hoffmann-La Roche Ltd, dated January 11, 2015 (incorporated by reference to Exhibit 10.3 of the Company's Form 8-K/A filed on August 24, 2015)
- 10.29 First Amendment to Ex-U.S. Commercialization Agreement, by and between the Company and F. Hoffmann-La Roche Ltd, dated May 9, 2016. (incorporated by reference to Exhibit 10.4 of the Company's Form 10-Q filed on August 3, 2016)
- 10.30*# Second Amendment to Ex-U.S. Commercialization Agreement, by and between the Company and F. Hoffmann-La Roche Ltd, dated October 10, 2017
- 10.31*# Third Amendment to Ex-U.S. Commercialization Agreement, by and between the Company and F. Hoffmann-La Roche Ltd, dated December 20, 2017
- 10.32# US Education Collaboration Agreement, by and between the Company and Genentech, Inc., dated January 11, 2015 (incorporated by reference to Exhibit 10.4 of the Company's Form 8-K/A filed on August 24, 2015)
- 10.33# Master IVD Collaboration Agreement, by and among the Company, F. Hoffmann-La Roche Ltd and Roche Molecular Systems, Inc., dated April 6, 2016 (incorporated by reference to Exhibit 10.5 of the Company's Form 10-Q/A filed on November 16, 2016)
- 10.34 Credit Facility Agreement, by and between the Company and Roche Finance Ltd., dated August 2, 2016 (incorporated by reference to Exhibit 10.1 of the Company's Form 8-K filed on August 2, 2016)
- 10.35† Executive Employee Offer letter issued by the Company to David J. Daly, dated as of November 20, 2014 (incorporated by reference to Exhibit (e)(26) to the Company's Solicitation/Recommendation Statement on Schedule 14D-9 filed on February 2, 2015)
- 10.36 Deed of Lease, by and between the Company and BCSP Cambridge Ten Property LLC, dated March 11, 2015 (incorporated by reference to Exhibit 10.1 of the Company's Form 8-K filed on March 12, 2015)

- 10.37 Lease Agreement, by and between the Company and ARE-7030 Kit Creek, LLC, dated April 18, 2016 (incorporated by reference to Exhibit 10.1 of the Company's Form 10-Q filed on May 3, 2016)
 - 10.38 Employment Agreement by and between the Company and Troy Cox, dated January 5, 2017 (incorporated by reference to Exhibit 10.1 of the Company's Form 8-K filed on January 6, 2017)
 - 10.39 Letter Agreement by and between the Company and Michael Pellini, M.D., dated January 5, 2017 (incorporated by reference to Exhibit 10.2 of the Company's Form 8-K filed on January 6, 2017)
 - 10.40 Retention Agreement by and between the Company and Steven Kafka, Ph.D., dated January 5, 2017 (incorporated by reference to Exhibit 10.3 of the Company's Form 8-K filed on January 6, 2017)
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- 10.41 Waiver and Consent by and between the Company and Roche Holdings, Inc., dated January 5, 2017 (incorporated by reference to Exhibit 10.4 of the Company's Form 8-K filed on January 6, 2017)
- 21.1* Subsidiaries of the Company
- 23.1* Consent of KPMG LLP
- 31.1* Certification of Principal Executive Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
- 31.2* Certification of Principal Financial Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
- 32.1** Certification of Principal Executive Officer and Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
- 101 Interactive Data Files regarding (a) our Consolidated Balance Sheets as of December 31, 2017 and 2016, (b) our Consolidated Statements of Operations and Comprehensive Loss for the Years Ended December 31, 2017, 2016 and 2015, (c) our Consolidated Statements of Stockholders' Equity for the Years Ended December 31, 2017, 2016 and 2015, (d) our Consolidated Statements of Cash Flows for the Years Ended December 31, 2017, 2016 and 2015, and (e) the Notes to such Consolidated Financial Statements

* Filed herewith.

**Furnished herewith.

Indicates a management contract or any compensatory plan, contract or arrangement.

#Confidential treatment has been requested or granted for certain information contained in this exhibit. Such information has been omitted and filed separately with the Securities and Exchange Commission.

ITEM 16.FORM 10-K SUMMARY

None

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

FOUNDATION MEDICINE, INC.

Date: March 7, 2018 By: /s/ Troy Cox
Troy Cox
Chief Executive Officer

(Principal Executive Officer)

Date: March 7, 2018 By: /s/ Jason Ryan
Jason Ryan
Chief Financial Officer

(Principal Financial and Accounting Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Name	Title	Date
/s/ Troy Cox	Chief Executive Officer and Director	March 7, 2018
Troy Cox	(Principal Executive Officer)	
/s/ Jason Ryan	Chief Financial Officer	March 7, 2018
Jason Ryan	(Principal Financial and Accounting Officer)	
/s/ Michael J. Pellini, M.D.	Chairman of the Board	March 7, 2018
Michael J. Pellini, M.D.		
/s/ Alexis Borisy	Director	March 7, 2018
Alexis Borisy		
/s/ Michael R. Dougherty	Director	March 7, 2018
Michael R. Dougherty		
/s/ Sandra Horning, M.D.	Director	March 7, 2018
Sandra Horning, M.D.		

/s/ Evan Jones	Director	March 7, 2018
Evan Jones		
/s/ Daniel O'Day	Director	March 7, 2018
Daniel O'Day		
/s/ Michael D. Varney, Ph.D.	Director	March 7, 2018
Michael D. Varney, Ph.D.		
/s/ Krishna Yeshwant, M.D.	Director	March 7, 2018
Krishna Yeshwant, M.D.		

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Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors of

Foundation Medicine, Inc.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Foundation Medicine, Inc. and subsidiaries (the Company) as of December 31, 2017 and 2016, the related consolidated statements of operations and comprehensive loss, stockholders' equity, and cash flows for each of the years in the three year period ended December 31, 2017, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of its operations and its cash flows for each of the years in the three year period ended December 31, 2017, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated 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 consolidated 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 consolidated 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 consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ KPMG LLP

We have served as the Company's auditor since 2015.

Boston, Massachusetts

March 7, 2018

FOUNDATION MEDICINE, INC.

Consolidated Balance Sheets

(In thousands, except share and per share data)

	December 31,	
	2017	2016
Assets		
Current assets:		
Cash and cash equivalents	\$71,404	\$63,617
Marketable securities	—	79,402
Accounts receivable	19,967	8,206
Receivable due from Roche	10,159	2,007
Inventory	13,171	10,438
Prepaid expenses and other current assets	9,118	5,251
Total current assets	123,819	168,921
Property and equipment, net	41,119	41,486
Restricted cash	2,305	1,395
Other assets	1,760	2,233
Total assets	\$169,003	\$214,035
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	\$21,926	\$11,898
Accrued expenses and other current liabilities	36,745	20,578
Deferred revenue	2,212	2,104
Roche related-party deferred revenue	3,742	3,747
Current portion of deferred rent	1,818	2,324
Total current liabilities	66,443	40,651
Deferred rent, net of current portion and other non-current liabilities	10,892	8,538
Indebtedness to Roche - non-current	60,000	—
Commitments and contingencies (Note 12)		
Stockholders' equity:		
Common stock, \$0.0001 par value, 150,000,000 shares authorized; 36,541,770		
and 35,281,001 shares issued and outstanding at December 31, 2017 and 2016,		
respectively	4	4
Additional paid-in capital	537,904	509,664
Accumulated other comprehensive loss	109	(14)
Accumulated deficit	(506,349)	(344,808)
Total stockholders' equity	31,668	164,846
Total liabilities and stockholders' equity	\$169,003	\$214,035

The accompanying notes are an integral part of these consolidated financial statements

FOUNDATION MEDICINE, INC.

Consolidated Statements of Operations and Comprehensive Loss

(In thousands, except share and per share data)

	Year Ended December 31,		
	2017	2016	2015
Revenue:			
Molecular information services	91,695	60,255	71,766
Related-party molecular information services from Roche	25,458	21,493	13,132
Pharma research and development services	10,922	13,133	7,993
Related-party pharma research and development services from Roche	24,828	21,984	312
Total revenue	152,903	116,865	93,203
Costs and expenses:			
Cost of molecular information services	76,256	52,978	36,695
Cost of related-party molecular information services from Roche	9,014	3,770	2,736
Selling and marketing	66,727	57,951	49,030
General and administrative	70,340	48,611	50,614
Research and development	91,509	67,371	43,883
Total costs and expenses	313,846	230,681	182,958
Loss from operations	(160,943)	(113,816)	(89,755)
Interest (expense) income, net	(727)	624	124
Other income	204	—	—
Net loss	\$(161,466)	\$(113,192)	\$(89,631)
Other comprehensive income (loss):			
Unrealized gain/(loss) on available-for-sale securities	9	169	(178)
Foreign currency translation adjustment	114	(5)	—
Total other comprehensive income (loss)	123	164	(178)
Comprehensive loss	\$(161,343)	\$(113,028)	\$(89,809)
Net loss per common share, basic and diluted	\$(4.50)	\$(3.25)	\$(2.73)
Weighted-average common shares outstanding, basic and diluted	35,877,678	34,794,347	32,836,219

The accompanying notes are an integral part of these consolidated financial statements

FOUNDATION MEDICINE, INC.

Consolidated Statements of Stockholders' Equity

(In thousands, except share and per share data)

	Accumulated			Total	
	Additional	Other		Stockholders'	
	Common Stock Shares	Paid-In Amount	Capital Loss	Comprehensive Accumulated (Deficit) Deficit	Equity
Balance at December 31, 2014	28,223,958	3	228,151	—	(141,985) 86,169
Exercise of stock options	1,070,457	—	4,739	—	— 4,739
Vesting of restricted stock	219,430	—	27	—	— 27
Issuance of common stock from Roche					
transaction, net of issuance costs	5,000,000	—	245,387	—	— 245,387
Stock-based compensation expense	—	—	11,176	—	— 11,176
Other comprehensive loss	—	—	—	(178)	— (178)
Net loss	—	—	—	—	(89,631) (89,631)
Balance at December 31, 2015	34,513,845	3	489,480	(178)	(231,616) 257,689
Exercise of stock options	167,853	—	652	—	— 652
Vesting of restricted stock	599,303	1	8	—	— 9
Stock-based compensation expense	—	—	19,524	—	— 19,524
Other comprehensive loss	—	—	—	164	— 164
Net loss	—	—	—	—	(113,192) (113,192)
Balance at December 31, 2016	35,281,001	4	509,664	(14)	(344,808) 164,846
Cumulative effective adjustment for ASU 2016-09 (Note 2)	—	—	75	—	(75) —
Exercise of stock options	540,695	—	5,963	—	— 5,963
Vesting of restricted stock	720,074	—	—	—	— —
Stock-based compensation expense	—	—	22,202	—	— 22,202
Other comprehensive loss	—	—	—	123	— 123
Net loss	—	—	—	—	(161,466) (161,466)
Balance at December 31, 2017	36,541,770	\$ 4	\$ 537,904	\$ 109	\$ (506,349) \$ 31,668

The accompanying notes are an integral part of these consolidated financial statements

FOUNDATION MEDICINE, INC.

Consolidated Statements of Cash Flows

(In thousands)

	Year Ended December 31,		
	2017	2016	2015
Operating activities			
Net loss	\$(161,466)	\$(113,192)	\$(89,631)
Adjustments to reconcile net loss to cash used in operating activities:			
Depreciation and amortization expense	18,517	15,949	10,600
Stock-based compensation	22,202	19,524	11,176
Provision for doubtful accounts on accounts receivable	—	—	171
Amortization of premiums and discounts on marketable securities	17	248	33
Loss on extinguishment of debt	283	—	—
Gain on disposal of long-lived assets	(327)	—	—
Changes in operating assets and liabilities:			
Accounts receivable	(11,721)	(844)	2,361
Receivable from Roche	(8,152)	(1,604)	(403)
Inventory	(2,576)	(2,446)	(3,183)
Prepaid expenses and other current assets	(3,825)	1,305	(3,652)
Other assets	210	210	(267)
Accounts payable	8,434	5,060	(1,559)
Accrued expenses and other current liabilities	15,463	8,919	4,704
Deferred rent and other non-current liabilities	1,848	(1,688)	1,805
Deferred revenue	107	1,387	377
Roche related-party deferred revenue	(5)	5	3,742
Net cash used in operating activities	(120,991)	(67,167)	(63,726)
Investing activities			
Purchases of property and equipment	(15,658)	(20,879)	(25,430)
Purchases of marketable securities and other investments	(4,996)	(107,456)	(114,756)
Proceeds from maturities of marketable securities	84,390	141,023	—
Change in restricted cash	(910)	—	(531)
Net cash provided by (used in) investing activities	62,826	12,688	(140,717)
Financing activities			
Proceeds from issuance of common stock to Roche, net of issuance costs	—	—	245,387
Proceeds from indebtedness to Roche	60,000	—	—
Proceeds from issuance of restricted stock and stock option exercises	5,963	652	4,739
Payment of debt issuance costs	(14)	(319)	—
Net cash provided by financing activities	65,949	333	250,126
Effect of exchange rate changes on cash and cash equivalents	3	—	—
Net increase (decrease) in cash and cash equivalents	7,787	(54,146)	45,683
Cash and cash equivalents at beginning of period	63,617	117,763	72,080
Cash and cash equivalents at end of period	\$71,404	\$63,617	\$117,763
Supplemental disclosure of cash flow information			
Cash paid for interest	\$545	\$77	\$—

Supplemental disclosure of non-cash investing and financing activities

Acquisition of property and equipment included in accounts payable and

accrued expenses	\$4,098	\$2,029	\$6,822
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The accompanying notes are an integral part of these consolidated financial statements

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FOUNDATION MEDICINE, INC.

Notes to Consolidated Financial Statements

1. Nature of Business

Foundation Medicine, Inc., and its wholly-owned subsidiaries, Foundation Medicine Securities Corporation and FMI Germany GmbH (collectively, the “Company”), is a molecular information company focused on fundamentally changing the way in which patients with cancer are evaluated and treated. The Company believes an information-based approach to making clinical treatment decisions based on comprehensive genomic profiling will become a standard of care for patients with cancer. The Company derives revenue from selling services that are enabled by its molecular information platform to physicians and biopharmaceutical companies.

The Company’s molecular information services for genomic profiling, FoundationOne for solid tumors, FoundationOneHeme for blood-based cancers, or hematologic malignancies, including leukemia, lymphoma, myeloma, pediatric cancers, and advanced sarcomas, FoundationACT, a blood-based (liquid biopsy) assay to measure circulating tumor DNA (“ctDNA”), and FoundationFocus CDxBRCA, an FDA-approved, companion diagnostic assay to aid in identifying women with ovarian cancer for whom treatment with Rubraca™ (rucaparib) is being considered, are widely available comprehensive genomic profiles designed for use in the routine care of patients with cancer. In November 2017, the Company received FDA approval for FoundationOne CDx, a broad companion diagnostic assay for solid tumors. FoundationOne CDx was approved as part of the parallel review process for breakthrough devices with the FDA and The Centers for Medicare and Medicaid Services (“CMS”). Concurrent with FDA approval, CMS issued a preliminary National Coverage Determination (“NCD”) for FoundationOne CDx. The preliminary NCD would provide coverage for FDA-approved companion diagnostic claims for solid tumors including NSCLC, CRC, breast and ovarian cancers, and melanoma, as well as a provide a pathway for additional coverage with evidence development in other solid tumor types. The Company expects to commercialize FoundationOne CDx following the issuance of the final coverage policy by CMS and activation of our proprietary billing code. To accelerate its commercial growth and enhance its competitive advantage, the Company is developing and commercializing new molecular information services for physicians and biopharmaceutical companies, strengthening its commercial organization, introducing new marketing, education and provider engagement efforts, growing its molecular information knowledgebase, called FoundationCORE, aggressively pursuing reimbursement from regional and national third-party payors, publishing scientific and medical advances, and fostering relationships throughout the oncology community.

The Company believes that its existing cash and cash equivalents and available borrowings at December 31, 2017 will be sufficient to allow the Company to fund its current operating plan through at least a period of one year after the date the financial statements are issued. As the Company continues to incur losses, its transition to profitability is dependent upon a level of revenues adequate to support the Company’s cost structure. If the Company’s transition to profitability is not consistent with its current operating plan, the Company may have to seek additional capital.

2. Summary of Significant Accounting Policies and Basis of Presentation

A. Basis of Presentation and Consolidation

The Company’s consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States (“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 Update (“ASU”) of the Financial Accounting Standards Board (“FASB”). The Company’s consolidated financial statements include the accounts of Foundation Medicine, Inc. and its wholly-owned subsidiaries, Foundation Medicine Securities Corporation and FMI Germany GmbH. All intercompany balances and transactions have been eliminated.

B. Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenue and expenses during the reporting period. 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. This process may result in actual results differing materially from those estimated amounts used in the preparation of the financial statements if these results differ from historical experience, or other assumptions do not turn out to be substantially accurate, even if such assumptions are reasonable when made. Significant estimates relied upon in preparing these consolidated financial statements include revenue recognition.

C. Off-Balance Sheet Risk and Concentrations of Credit Risk

The Company has no off-balance sheet risk, such as foreign exchange contracts, option contracts, or other foreign hedging arrangements. Financial instruments, which potentially subject the Company to significant concentrations of credit risk, consist primarily of cash, cash equivalents, marketable securities designated as available-for-sale, and accounts receivable. The primary

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objectives for the Company's investment portfolio are the preservation of capital and the maintenance of liquidity. The Company's investment policy includes guidelines on the quality of the institutions and financial instruments and defines allowable investments that the Company believes minimizes the exposure to concentration of credit risk. The Company's marketable securities are designated as available-for-sale and primarily consist of U.S. government agency securities and U.S. treasuries. The Company holds no marketable securities as of December 31, 2017.

The Company routinely assesses the creditworthiness of its customers. The Company has not experienced any material losses related to receivables from individual customers, or groups of customers. The Company does not require collateral. Due to these factors, no additional credit risk beyond amounts provided for collection losses is believed by management to be probable in the Company's accounts receivable.

D. 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, or decision-making group, in deciding how to allocate resources and in assessing performance. The Company views its operations and manages its business in one operating segment, which is the business of delivering molecular information about cancer to its customers.

The Company's revenue is generated primarily in the United States. The majority of the Company's revenue from customers located outside the United States, which was generated from four customers, was \$9,397,000, \$7,283,000, and \$3,170,000 for the years ended December 31, 2017, 2016, and 2015, respectively. The Company's long-lived assets are located in the United States and at our Germany subsidiary, representing 91% and 9%, respectively, of total property and equipment, net.

E. Cash and Cash Equivalents

The Company considers all highly liquid investments with original maturity from the date of purchase of three months or less to be cash equivalents. Cash and cash equivalents include bank demand deposits and money market funds that invest primarily in U.S. government-backed securities and treasuries. Cash equivalents are carried at cost, which approximates their fair value.

F. Marketable Securities

The Company classifies its marketable securities as available-for-sale. Marketable securities with a remaining maturity date greater than one year are classified as non-current. Available-for-sale securities are maintained by an investment manager and consist of U.S. treasury securities, U.S. government agency securities, and money market funds invested in U.S. government-agency securities or U.S. treasuries. Available-for-sale securities are carried at fair value with the unrealized gains and losses included in accumulated other comprehensive loss as a component of stockholders' equity until realized. Any premium or discount arising at purchase is amortized and/or accreted to interest income and/or expense. Realized gains and losses are determined using the specific identification method and are included in other income (expense).

If any adjustment to fair value reflects a decline in value of the investment, the Company considers all available evidence to evaluate the extent to which the decline is "other-than-temporary" and, if so, mark the investment to market through a charge to the Company's statement of operations and comprehensive loss.

G. Accounts Receivable

The Company's accounts receivable consists primarily of amounts due from biopharmaceutical customers, and from certain hospitals, cancer centers and other institutions with whom it has negotiated price per test (direct bill) relationships for tests performed using its molecular information platform. There are no accounts receivable associated with amounts that are billed to commercial third-party payors or directly to patients, because this revenue is recognized on a cash basis (see Note 2 Section L).

Two customer account balances consisting of \$10,159,000 and \$8,990,000 were greater than 10% of the total accounts receivable balance, including receivables due from Roche, representing 34% and 30%, respectively, of total accounts receivable at December 31, 2017. Three customer account balances consisting of \$2,079,000, \$2,007,000 and \$1,319,000 were greater than 10% of the total accounts receivable balance, including receivables due from Roche, representing 20%, 20% and 13%, respectively, of total accounts receivable at December 31, 2016.

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H. Inventory

Inventories are stated at the lower of cost or market on a first-in, first-out basis. In order to assess the ultimate realization of inventories, the Company is required to make judgments as to future demand requirements compared to current or committed inventory levels. The Company periodically reviews its inventories for excess or obsolescence and writes-down obsolete or otherwise unmarketable inventory to its estimated net realizable value. If the actual net realizable value is less than that estimated by us, or if it is determined that inventory utilization will further diminish based on estimates of demand, additional inventory write-downs may be required. Amounts written-down due to unmarketable inventory are charged to cost of sales. At December 31, 2017 and 2016, inventory consisted of the following (in thousands):

	December 31,	
	2017	2016
Raw materials	\$8,963	\$8,293
Work-in-process	4,208	2,145
Total inventory	\$13,171	\$10,438

I. Property and Equipment

Property and equipment are stated at cost, less accumulated depreciation and amortization. Property and equipment are depreciated and amortized using the straight-line method over the estimated useful lives of the assets. Maintenance and repairs are expensed as incurred. The following estimated useful lives are used to depreciate the Company's assets:

	Estimated Useful Life
Computer equipment and software	3 years
Lab equipment	3 years
Furniture and fixtures	5 years
Leasehold improvements	Shorter of the useful life or remaining lease term

The Company capitalizes certain costs incurred for software developed or obtained for internal use, including external direct material and service costs. Capitalized internal-use software costs, which are included in property and equipment, are generally depreciated over three years.

The Company reviews long-lived assets when events or changes in circumstances indicate the carrying value of the assets may not be recoverable. Recoverability is measured by comparison of the assets' book value to future net undiscounted cash flows that the assets are expected to generate. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the book value of the assets exceeds their fair value, which is measured based on the projected discounted future net cash flows arising from the assets. No material impairment losses were recorded during the years ended December 31, 2017, 2016 or 2015.

J. Restricted Cash

Restricted cash consists of deposits securing collateral letters of credit issued in connection with the Company's operating leases. The Company had restricted cash of \$2,305,000 and \$1,395,000 as of December 31, 2017 and 2016, respectively.

K. Fair Value of Financial Instruments

The Company is required to disclose information on all assets and liabilities reported at fair value that enables an assessment of the inputs used in determining the reported fair values. FASB ASC Topic 820, Fair Value Measurements and Disclosures (“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 a company. Unobservable inputs are inputs that reflect a 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 fair value hierarchy applies only to the valuation inputs used in determining the reported fair value of the investments and is not a measure of the investment credit quality. The hierarchy defines three levels of valuation inputs:

Level 1 inputs Quoted prices in active markets for identical assets or liabilities

Level 2 inputs Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly

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Level 3 inputs Unobservable inputs that reflect a company's own assumptions about the assumptions market participants would use in pricing the asset or liability

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. (See Note 9)

L. Revenue Recognition

The Company derives revenue from the provision of molecular information services provided to its ordering physicians and biopharmaceutical customers, as well as from pharma research and development services provided to its biopharmaceutical customers. Molecular information services include molecular profiling and the delivery of other molecular information derived from the Company's platform. Pharma research and development services include the development of new platforms and information solutions, including companion diagnostic development. The Company currently receives payments from commercial third-party payors, Medicare, certain hospitals and cancer centers with which it has direct-bill relationships, individual patients, and its biopharmaceutical customers.

The Company recognizes revenue in accordance with FASB ASC Topic 605, Revenue Recognition ("ASC 605"). Accordingly, the Company recognizes revenue when all of the following criteria are met: (i) persuasive evidence of an arrangement exists; (ii) delivery has occurred; (iii) the fee is fixed or determinable; and (iv) collectability is reasonably assured. Criterion (i) is satisfied when the Company has an arrangement or contract in place. Criterion (ii) is satisfied when the Company delivers a report to the ordering physician or the biopharmaceutical customer. Determination of criteria (iii) and (iv) are based on management's judgments regarding whether the fee is fixed or determinable, and whether the collectability of the fee is reasonably assured.

The Company recognizes revenue on a cash basis when it cannot conclude that criteria (iii) and (iv) have been met. The Company currently recognizes revenue on a cash basis from sales of its molecular information services to certain clinical customers, including payments received from commercial third-party payors, Medicare, and from patients who make co-payments, pay deductibles or from other amounts that the Company has been unable to collect from third-party payors. The Company uses judgment in its assessment of whether the fee is fixed or determinable and whether collectability is reasonably assured in determining when to recognize revenue in the future as it continues to gain payment experience with third-party payors and patients. Accordingly, the Company expects to recognize revenue on a cash basis for these clinical customers until it has sufficient history to reliably estimate payment patterns. The Company's molecular information services are delivered electronically, and as such there are no shipping and handling fees incurred by the Company or billed to customers. The Company's molecular information services are exempt from state sales taxation due to the nature of the services. As a result, the Company does not charge customers state sales tax.

The Company recognizes revenue from the sale of its molecular information services to clinical customers, including certain hospitals, cancer centers, other institutions and patients, at the time results of the test are reported to physicians, if criteria (i) through (iv) above are met.

Revenue from sales of the Company's services to biopharmaceutical customers are based on a negotiated price per test or on the basis of an agreement to provide certain testing volume, data access, or pharma research and development services over a defined period. The Company recognizes revenue upon delivery of the test results, or over the period in which pharma research and development services are provided, as appropriate.

The Company performs pharma research and development services for its biopharmaceutical customers utilizing its molecular information platform. Contracts for pharma customers are primarily analyzed as multiple-element

arrangements given the nature of the service deliverables. For pharma research and development services performed, the Company is compensated in various ways, including (1) through the reimbursement of costs incurred; (2) through non-refundable regulatory and other developmental milestone payments; and (3) through royalty and sales milestone payments. For some multiple-element arrangements, including the R&D Collaboration Agreement with Roche, the Company will be reimbursed for either all or a portion of the research and development costs incurred. The Company performs pharma research and development services as part of its normal activities. The Company records these payments as Pharma research and development services revenue in the Consolidated Statements of Operations and Comprehensive Loss, using a proportional performance model over the period which the unit of accounting is delivered or based on the level of effort expended to date over the total expected effort, whichever is considered the most appropriate measure of performance. The research and development costs incurred by the Company under these arrangements are included as Research and development expenses in the Company's Consolidated Statements of Operations and Comprehensive Loss given these costs are related to the development of new services to be owned and offered by the Company to its customers.

The Company analyzes multiple-element arrangements based on the guidance in FASB ASC Topic 605-25, Revenue Recognition-Multiple-Element Arrangements ("ASC 605-25"). Pursuant to the guidance in ASC 605-25, the Company evaluates multiple-element arrangements to determine (1) the deliverables included in the arrangement and (2) whether the individual deliverables represent separate units of accounting or whether they must be accounted for as a combined unit of accounting. This

evaluation involves subjective determinations and requires management to make judgments about the individual deliverables and whether such deliverables are separable from the other aspects of the contractual relationship. Deliverables are considered separate units of accounting if: (i) the delivered items have value to the customer on a standalone basis and (ii) the arrangement includes a general right of return relative to the delivered items and delivery or performance of the undelivered items is considered probable and substantially in the control of the Company. In assessing whether an item has standalone value, the Company considers factors such as the research, development and commercialization capabilities of a third party and the availability of the associated expertise in the general marketplace. In addition, the Company considers whether the other party in the arrangement can use the other deliverables for their intended purpose without the receipt of the remaining elements, whether the value of the deliverable is dependent on the undelivered items, and whether there are other vendors that can provide the undelivered elements.

Arrangement consideration that is fixed or determinable is allocated among the separate units of accounting using the relative selling price method. Then, the applicable revenue recognition criteria in ASC 605-25 is applied to each of the separate units of accounting in determining the appropriate period and pattern of recognition. The Company determines the selling price of a unit of accounting following the hierarchy of evidence prescribed by ASC 605-25. Accordingly, the Company determines the estimated selling price for units of accounting within each arrangement using vendor-specific objective evidence (“VSOE”) of selling price, if available, third-party evidence (“TPE”) of selling price if VSOE is not available, or best estimate of selling price (“BESP”) if neither VSOE nor TPE is available. The Company typically uses BESP to estimate the selling price, since it generally does not have VSOE or TPE of selling price for its units of accounting under multiple-element arrangements. Determining the BESP for a unit of accounting requires significant judgment. In developing the BESP for a unit of accounting, the Company considers applicable market conditions and estimated costs. The Company validates the BESP for units of accounting by evaluating whether changes in the key assumptions used to determine the BESP will have a significant effect on the allocation of arrangement consideration between multiple units of accounting. The Company recognizes arrangement consideration allocated to each unit of accounting when all of the revenue recognition criteria in ASC 605-25 are satisfied for that particular unit of accounting.

At the inception of an arrangement that includes milestone payments to the Company, the Company evaluates whether each milestone is substantive and at risk to both parties on the basis of the contingent nature of the milestone. This evaluation includes an assessment of whether: (i) the consideration is commensurate with either the Company’s performance to achieve the milestone or the enhancement of the value of the delivered items as a result of a specific outcome resulting from the Company’s performance to achieve the milestone, (ii) the consideration relates solely to past performance, and (iii) the consideration is reasonable relative to all of the deliverables and payment terms within the arrangement. The Company evaluates factors such as the scientific, clinical, regulatory, commercial, and other risks that must be overcome to achieve the respective milestone and the level of effort and investment required to achieve the respective milestone in making this assessment. There is considerable judgment involved in determining whether a milestone satisfies all of the criteria required to conclude that a milestone is substantive. Generally, once a substantive milestone has been achieved, the Company will recognize revenue related to that milestone using a proportional performance model over the period which the unit of accounting is delivered or based on the level of effort expended to date over the total expected effort, whichever is considered the most appropriate measure of performance. Revenue from commercial milestone payments are accounted for as royalties and recorded as revenue upon achievement of the milestone, assuming all other revenue recognition criteria are met.

The Company also recognizes royalty revenue in the period of sale of the related service(s), based on the underlying contract terms, provided that the reported sales are reliably measurable and the Company has no remaining performance obligations, assuming all other revenue recognition criteria are met. To date, royalty revenue recognized by the Company has been immaterial.

Two customer arrangements, consisting of \$50,286,000 and \$15,450,000 of revenue, was greater than 10% of total revenue, representing 33% and 10%, respectively, of the Company’s total revenue for the year ended December 31,

2017. Two customer arrangements, consisting of \$43,477,000 and \$11,735,000 of revenue, were greater than 10% of total revenue, representing 37% and 10%, respectively, of the Company's total revenue for the year ended December 31, 2016. Two customer arrangements, consisting of \$13,444,000 and \$10,618,000 of revenue, were greater than 10% of total revenue, representing 14% and 11%, respectively, of the Company's total revenue for the year ended December 31, 2015.

M. Cost of Revenue

Cost of molecular information services generally consists of specific reagents, specific consumable lab supplies, and shared costs that are allocated to the Company's molecular information services – its FoundationOne, FoundationOneHeme, FoundationACT and FoundationFocus CDxBRCA tests – either on a direct or indirect basis, resulting in an overall cost for each specific test. The shared costs that are allocated to each test include personnel expenses (comprised of salaries, bonuses, employee benefits and stock-based compensation expenses), depreciation of laboratory equipment and amortization of leasehold improvements, shipping costs, third-party laboratory costs, and certain overhead expenses.

Costs associated with performing tests are recorded as tests are processed. These costs are recorded regardless of whether revenue is recognized with respect to those tests. Because the Company currently recognizes revenue on a cash basis from commercial

third-party payors and patients who make co-payments, pay deductibles or pay other amounts that the Company has been unable to collect from their insurers, the costs of those tests are often recognized in advance of any associated revenues.

Cost of Related-party molecular information services from Roche is generally derived by taking the cost per test described above and applying it to each of the FoundationOne, FoundationOneHeme and FoundationACT tests processed for Roche. Costs of Related-party molecular information services from Roche are associated with performing molecular information services for Roche under both the (i) molecular information platform program within the Company's R&D Collaboration Agreement with Roche, and (ii) the Company's Ex-U.S. Commercialization Agreement with Roche. Revenues from tests performed by the Company under the molecular information platform and the Ex-U.S. Commercialization Agreement are recognized in the Related-party molecular information services from Roche caption within the Company's Consolidated Statements of Operations and Comprehensive Loss.

N. Research and Development Expenses

Research and development expenses consist primarily of costs incurred for the development of new and enhanced services, immunotherapy testing, companion diagnostic development, significant service improvements, clinical trials to evaluate the clinical utility of the Company's services, the development of our FoundationCORE knowledgebase, and various technology applications such as Foundation Portal. Costs to develop the Company's technology capabilities are recorded as research and development unless they meet the criteria to be capitalized as internal-use software costs. The Company's research and development activities include the following costs:

- personnel-related expenses such as salaries, bonuses, employee benefits, and stock-based compensation;
- fees for contractual and consulting services;
- costs to manage and synthesize our medical data and to expand FoundationCORE;
- clinical trials;
- laboratory supplies; and
- allocated overhead expenses.

Costs incurred for the performance of pharma research and development services requested by the Company's biopharmaceutical customers, including non-molecular information services costs incurred under the R&D Collaboration Agreement with Roche, are included as Research and development expenses in the Consolidated Statements of Operations and Comprehensive Loss, given that these costs are related to the development of new services to be owned and offered by the Company to its customers. Revenues from these services are recognized in the Pharma research and development services and Related-party pharma research and development services from Roche captions within the Company's Consolidated Statements of Operations and Comprehensive Loss.

O. Stock-Based Compensation

The Company accounts for stock-based compensation awards in accordance with FASB ASC Topic 718, Compensation—Stock Compensation ("ASC 718"). ASC 718 requires all stock-based compensation to employees, including grants of employee stock options and restricted stock and modifications to existing stock options, to be recognized in the statement of operations and comprehensive loss based on their fair values.

Compensation expense related to awards to employees is recognized on a ratable straight-line basis, based on the grant date fair value, over the requisite service period of the award, which is generally the vesting term. Awards to non-employees are adjusted through stock-based compensation expense as the awards vest to reflect the current fair value of such awards, and are expensed using the straight-line method.

The Company expenses restricted stock awards based on the fair value of the award on a ratable straight-line basis over the requisite service period of the award. The unvested portion of awards of restricted stock to non-employees is subject to remeasurement over the vesting term.

The Company estimates the fair value of its stock-based awards to employees and directors using the Black-Scholes option pricing model, which requires subjective assumptions, including (a) the expected stock price volatility, (b) the expected term of the award, (c) the risk-free interest rate, and (d) expected dividends. Due to the lack of Company-specific historical and implied volatility data, the Company has based its estimate of expected volatility on the historical volatility of a representative group of companies that are publicly traded. The Company selected a representative group of companies with comparable characteristics to it, including risk profiles, position within the industry, and with historical share price information sufficient to meet the expected term of the stock-based awards. The Company computes the historical volatility of this selected group using the daily closing prices for the selected companies' shares during the equivalent period of the calculated expected term of the stock-based awards. The Company will continue to apply this process until a sufficient amount of historical information regarding the volatility of its own stock price becomes available. The Company estimates the expected life of its employee stock options using the "simplified" method, whereby, the expected life equals the arithmetic average of the vesting term and the original contractual term of the option due to its lack of sufficient historical data. The risk-free interest rates for periods within the expected term of the option are based on the U.S. Treasury securities with a maturity date commensurate with the expected term of the associated award. The Company has never paid, and does not expect to pay, dividends in the foreseeable future; therefore, the expected dividend yield is assumed to be zero. There were no options awarded during the year ended December 31, 2017.

In March 2016, The FASB issued ASU-09, "Improvements to Employee Share-Based Payment Accounting," and the Company adopted this standard in the first quarter of 2017 with an immaterial change to retained earnings. As part of the adoption of this standard, the Company elected to account for forfeitures as they occur, rather than estimate expected forfeitures over the vesting period of the respective grant.

P. Income Taxes

Income taxes are recorded in accordance with FASB ASC Topic 740, Income Taxes ("ASC 740"), which provides for deferred taxes using an asset and liability approach. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases using enacted tax rates in effect for the year in which the differences are expected to affect taxable income. Tax benefits are recognized when it is more likely than not that a tax position will be sustained during an audit. Deferred tax assets are reduced by a valuation allowance if current evidence indicates that it is considered more likely than not that these benefits will not be realized.

On December 22, 2017, the Tax Cuts and Jobs Act (the "Act") was enacted in the United States. The Act reduces the U.S. federal corporate tax rate from 34% to 21%, requires companies to pay a one-time transition tax on earnings of certain foreign subsidiaries that were previously tax deferred and creates new taxes on certain foreign sourced earnings. In December 2017, the Securities and Exchange Commission ("SEC") issued guidance under Staff Accounting Bulletin No. 118, Income Tax Accounting Implications of the Tax Cuts and Jobs Act ("SAB 118") directing taxpayers to consider the impact of the U.S. legislation as "provisional" when it does not have the necessary information available, prepared or analyzed (including computations) in reasonable detail to complete its accounting for the change in tax law. As of December 31, 2017, the Company had not yet completed its accounting for all of the tax effects of the enactment of the Act; however, the Company has made a reasonable estimate of the effects on our existing deferred tax balances and one-time transition tax. For the year ended December 31, 2017, we recognized no transition tax. In all cases, we will continue to make and refine our calculations as additional analysis is completed. In addition, our estimates may also be affected as we gain a more thorough understanding of the tax law. The Company expects that any additional changes will be offset by an increase or decrease in the Company valuation allowance. Refer to Note 11, Income Taxes, for additional information regarding this new tax legislation

Q. Net Loss Per Share

Basic net loss per share is calculated by dividing net loss applicable to common stockholders by the weighted-average shares outstanding during the period, without consideration for common stock equivalents. Diluted net loss per share is calculated by adjusting the weighted-average shares outstanding for the dilutive effect of common stock equivalents

outstanding for the period, determined using the treasury-stock method. For purposes of the diluted net loss per share calculation, preferred stock, stock options, restricted stock awards, and warrants are considered to be common stock equivalents but are excluded from the calculation of diluted net loss per share because their effect would be anti-dilutive. Therefore, basic and diluted net loss per share applicable to common stockholders were the same for all periods presented.

R. Comprehensive Loss

Comprehensive loss is defined as the change in equity of a business enterprise during a period from transactions, other events, and circumstances from non-owner sources. Comprehensive loss consists of net loss and other comprehensive gain (loss), which includes unrealized gains (losses) on available-for-sale securities and foreign currency translation adjustments. Comprehensive loss is included in the accompanying statements of operations and comprehensive loss.

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S. Reclassifications

Certain reclassifications have been made to the revenue captions of the Condensed Consolidated Statements of Operations and Comprehensive Loss to conform to the current classifications. These reclassifications had no net effect on the Company's consolidated results.

T. Application of New or Revised Accounting Standards

On April 5, 2012, the Jump-Start Our Business Startups Act (the "JOBS Act") was signed into law. The JOBS Act contains provisions that, among other things, reduce certain reporting requirements for an "emerging growth company." As an emerging growth company, the Company has elected to not take advantage of the extended transition period afforded by the JOBS Act for the implementation of new or revised accounting standards, and as a result, will comply with new or revised accounting standards on the relevant dates on which adoption of such standards is required for non-emerging growth companies.

U. Recent Accounting Pronouncements

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. Unless otherwise discussed, the Company believes that the impact of recently issued standards that are not yet effective will not have a material impact on its financial position or results of operations upon adoption.

In May 2014, the FASB issued Accounting Standards Update No. 2014-09, Revenue from Contracts with Customers ("ASU 2014-09"), which supersedes the revenue recognition requirements in Accounting Standards Codification 605 ("ASC 605") and most industry-specific guidance. ASU 2014-09 requires that an entity recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration the entity expects to receive in exchange for those goods or services. To achieve this core principle, ASU 2014-09 includes provisions within a five-step model that includes identifying the contract with a customer, identifying the performance obligations in the contract, determining the transaction price, allocating the transaction price to the performance obligations, and recognizing revenue when, or as, an entity satisfies a performance obligation. ASU 2014-09 also requires additional disclosure about the nature, amount, timing, and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments and changes in judgments and assets recognized from costs incurred to obtain or fulfill a contract. In August 2015, the FASB decided to delay the effective date of ASU 2014-09 through the issuance of an additional ASU, which revised the effective date for ASU 2014-09 to annual and interim periods beginning on or after December 15, 2017, with early adoption permitted, but not earlier than the original effective date of annual and interim periods beginning on or after December 15, 2016, for public entities. In May 2014, the FASB and International Accounting Standards Board formed The Joint Transition Resource Group for Revenue Recognition ("TRG"), consisting of financial statement preparers, auditors, and users, to seek feedback on potential issues related to the implementation of the new revenue standard. As a result of feedback from the TRG, the FASB issued additional ASUs throughout 2016 to provide clarification, implementation guidance, and practical expedients to address some of the challenges of implementation. The new ASUs have the same effective date and transition requirements as ASU 2014-09. We refer to these ASUs which comprise Accounting Standards Codification 606 ("ASC 606") and Accounting Standards Codification 340-40 ("ASC 340-40") collectively as the "new standard".

The new standard became effective for the Company on January 1, 2018 and will be adopted utilizing the modified retrospective method, meaning the cumulative effect of applying the standard will be recognized to opening retained earnings at the date of initial application. The Company has completed assessing its contracts and revising its accounting policies under the new standard for all but one significant contract, for which the assessment is substantially complete. For those contracts where the assessment is complete, the Company has finalized its assessment of accounting under the new accounting policies as compared to current accounting policies in order to identify differences that result from applying the new standard to its revenue streams. The Company will finalize its assessment of the final customer contract prior to the completion of its assessment during the first quarter of 2018. In performing the contract reviews, the Company identified two revenue streams for its contracts with customers: (1) molecular information services, and (2) pharma research and development services.

For the molecular information services revenue stream, for certain revenue arrangements the Company has identified a difference in accounting applying the new standard as compared to applying the current accounting standards. Currently, for certain clinical customers, the Company will defer revenue recognition until cash receipt when the price pursuant to the underlying customer arrangement is not fixed and determinable and collectability is not reasonably assured. Under the new standard, this is considered variable consideration. For these arrangements, the Company will record an estimate of the transaction price, subject to the constraint in the new standard for variable consideration, as revenue at the time of delivery. This estimate will be monitored in subsequent periods and adjusted as necessary based on actual collection experience. This will result in earlier revenue recognition as compared to current revenue recognition. The Company will implement the necessary controls to support the recording and subsequent monitoring of these estimates. As of December 31, 2017, the Company expects to recognize a transition adjustment to retained earnings estimated in the range of \$16 million to \$20 million to reflect the cumulative impact for the accounting policy differences related to these clinical molecular information contracts. A range has been provided, rather than a point estimate, as the accounting policy difference requires the estimation and constraint of variable consideration, which involves significant judgment due to reimbursement uncertainty

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driven by our “out-of-network” status with most payors. The Company will continue to monitor and refine this estimate leading up to ultimate recording and disclosure within the Q1 2018 Form 10-Q filing. Revisions to the estimate subsequent to the Q1 2018 Form 10-Q filing will be reflected as a change in revenue, rather than an adjustment to retained earnings.

For the pharma research and development services revenue stream, the Company has identified a difference in accounting for certain contracts from the application of the new standard as compared to current revenue accounting standards. Currently, for arrangements with regulatory and other developmental milestone payments, the Company will constrain revenue recognition based on the right to invoice the customer. Under the new standard, for these arrangements, the Company will constrain revenue to the extent that it is probable that a significant reversal in the amount of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is subsequently resolved. Based on the facts and circumstances associated with each milestone, this could result in a change to the timing and pattern of revenue recognition as compared to current accounting policy. As of December 31, 2017, the Company expects to recognize an immaterial transition adjustment to retained earnings to reflect the cumulative impact for the accounting policy differences related to these pharma research and development contracts.

For both revenue streams, the Company’s disclosures contained in the notes to the consolidated financial statements relating to revenue recognition will expand under the new standard. The Company has evaluated the new disclosure requirements, including any necessary changes to business processes, systems, and controls to support the additional required disclosures.

In February 2016, the FASB issued ASU 2016-02, Leases (“ASU 2016-02”), to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities, including for operating leases (See Note 12), on the balance sheet and disclosing key information about leasing arrangements. ASU 2016-02 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018. The Company is still performing its assessment of ASU 2016-02 and expects that substantially all of its operating lease commitments will be subject to the new guidance.

In March 2016, the FASB issued ASU 2016-09, Improvements to Employee Share-Based Payment Accounting (“ASU 2016-09”). ASU 2016-09 simplifies several aspects of the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities, forfeiture rates, and classification on the statement of cash flows. ASU 2016-09 was effective for fiscal years beginning after December 15, 2016. The Company adopted ASU 2016-09 prospectively in the first quarter of 2017 and, as such, no prior periods were adjusted. In 2017, a cumulative effect adjustment of \$0.1 million was recorded to retained earnings upon adoption of ASU 2016-09.

In November 2016, the FASB issued ASU 2016-18, Restricted Cash (“ASU 2016-18”). ASU 2016-18 provides guidance on the classification of restricted cash and cash equivalents in the statement of cash flows. Although it does not provide a definition of restricted cash or restricted cash equivalents, it states that amounts generally described as restricted cash and restricted cash equivalents should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of period total amounts shown on the statement of cash flows. ASU 2016-18 is effective for interim and annual reporting periods beginning after December 15, 2017. The adoption of ASU 2016-18 is not expected to have a material effect on the Company’s consolidated financial statements or disclosures.

In May 2017, the FASB issued ASU 2017-09, Scope of Modification Accounting (“ASU 2017-09”). ASU 2017-09 provides guidance about which terms or conditions of a share-based payment award require an entity to apply modification accounting in Topic 718. ASU 2017-18 is effective for interim and annual reporting periods beginning after December 15, 2017. The adoption of ASU 2017-09 is not expected to have a material effect on the Company’s consolidated financial statements or disclosures.

3. Significant Agreements

Roche Holdings, Inc. and its affiliates

Summary of the Transaction

On January 11, 2015, the Company signed a broad strategic collaboration with Roche Holdings, Inc. and certain of its affiliates (collectively, “Roche”) to further advance the Company’s leadership position in genomic analysis and molecular information solutions in oncology. The transaction, which is a broad multi-part arrangement that includes a research & development (“R&D”) collaboration, a commercial collaboration, a U.S. medical education collaboration, and an equity investment with certain governance provisions, closed on April 7, 2015.

Under the terms of the transaction, Roche (a) made a primary investment of \$250,000,000 in cash through the purchase of 5,000,000 newly issued shares of the Company’s common stock at a purchase price of \$50.00 per share and (b) completed a tender offer to acquire 15,604,288 outstanding shares of the Company’s common stock at a price of \$50.00 per share. Immediately following the closing of the transaction, Roche owned approximately 61.3% of the outstanding shares. As of December 31, 2017, Roche’s ownership was approximately 57.5% of the outstanding shares. Upon the closing of the transaction, the size of the Board of Directors of the Company (“Board”) was increased to nine, including three designees of Roche. In February 2017, the Board was increased to ten members.

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The Company assessed the agreements related to each of the R&D collaboration, commercial collaboration, and the U.S. medical education collaboration and determined they should be treated as a single contract for accounting purposes.

Summary of the R&D Collaboration Agreement

Under the terms of the Collaboration Agreement by and among the Company, F. Hoffmann-La Roche Ltd, and Hoffmann-La Roche Inc., dated January 11, 2015, as amended (the “R&D Collaboration Agreement”), Roche could pay the Company more than \$150,000,000 over a period of five years to access its molecular information platform, to reserve capacity for sample profiling, and to fund R&D programs. Amounts under the R&D Collaboration Agreement will be received as services are performed and obligations are fulfilled under each platform program. Roche will utilize the Company’s molecular information platform to standardize sample profiling conducted as part of its clinical trials, to enable comparability of clinical trial results for R&D purposes, and to better understand the potential for combination therapies. In addition, Roche and the Company will jointly develop solutions related to cancer immunotherapy testing, blood-based genomic analysis using ctDNA assays, and next generation companion diagnostics, each of which represents a distinct platform within the R&D Collaboration Agreement. The R&D Collaboration Agreement is governed by a Joint Management Committee (“JMC”) formed by an equal number of representatives from the Company and Roche. There are also other sub-committees for each platform that will be established to oversee the day to day responsibilities of the respective platform. The JMC will, among other activities, review and approve R&D plans and establish and set expectations for the other platform sub-committees. The JMC and other sub-committees, although considered deliverables under the arrangement, are immaterial in relation to the entire arrangement and therefore were not considered when allocating consideration.

On April 6, 2016, the Company and Roche entered into the First Amendment to the R&D Collaboration Agreement, which reduced certain restrictions on the Company’s activities in immuno-oncology and revised certain criteria for the achievement of a development milestone.

On June 16, 2016, the Company and Roche entered into the Second Amendment to the R&D Collaboration Agreement, which set forth the terms of an omnibus development program to provide for R&D projects that do not fall within the scope of the other programs already covered by the R&D Collaboration Agreement. For the new R&D projects contemplated during 2016 under the Second Amendment to the R&D Collaboration Agreement, Roche will reimburse the Company for certain R&D costs incurred for the agreed upon work. In addition, Roche will be required to make certain milestone payments upon the achievement of specified clinical events up to \$13,000,000 in the aggregate. All milestone payments are considered substantive. The R&D reimbursements and clinical milestone payments will be recognized using a proportional performance model when earned by the Company.

On July 25, 2016, the Company and Roche entered into a Third Amendment to the R&D Collaboration Agreement, which modified certain exclusivity provisions relating to cancer immunotherapy.

On December 20, 2016, the Company and Roche entered into a Fourth Amendment to the R&D Collaboration Agreement, which further modified certain exclusivity provisions relating to cancer immunotherapy.

On September 8, 2017, the Company and Roche entered into a Fifth Amendment to the R&D Collaboration Agreement, which reduced certain exclusivity provisions relating to blood-based tumor mutational burden assays.

On November 1, 2017, the Company and Roche entered into a Sixth Amendment to the R&D Collaboration Agreement, which further modified certain exclusivity provisions relating to cancer immunotherapy.

Molecular Information Platform Program

Under the molecular information platform program within the R&D Collaboration Agreement, the following deliverables were identified: (i) cross-licenses for access to relevant intellectual property (“IP”), (ii) reserved capacity for sample profiling, (iii) access to the Company’s molecular information database, (iv) full-time equivalent persons (“FTEs”) per year for performance of database queries and the delivery of results, and (v) sample profiling above the reserved capacity limit.

The Company determined which deliverables within the arrangement have standalone value from the other undelivered elements, and identified the following separate units of accounting: (i) reserved capacity for sample profiling, (ii) access to the Company’s molecular information database and FTEs per year for the performance of database queries and the delivery of results, and (iii) sample profiling above the reserved capacity limit. The cross-licenses grant each party access to relevant IP to perform under the contract or to exploit the deliverables. The licenses are delivered at the inception of the arrangement and relate to development and sample profiling work performed under the platform. The Company does not sell the licenses separately as they are closely connected to the development and sample profiling activities and have little value to Roche without these other deliverables. Therefore, the licenses are combined with the other units of accounting identified under the molecular information platform program and do not have standalone value.

The Company identified allocable consideration of approximately \$85,000,000 related to the molecular information platform program, which was allocated to the individual units of accounting based on the best estimate of selling price (“BESP”). Revenue related to reserved capacity for sample profiling will be recognized on a straight-line basis as the capacity is available for each

individual contract year within the arrangement. The database access and FTE payments will be recognized ratably over the five-year contract life. The FTEs will perform database queries and will deliver results of the requested database queries. The value to Roche is not only the access to the database, but also the service being performed by the FTEs. Therefore, the Company concluded the FTEs should be combined with the database access as one unit of accounting. For any sample profiling provided above the reserved capacity, the Company will recognize revenue as the service is provided based on the BESP.

Immunotherapy Testing Platform Development Program

Under the immunotherapy testing platform development program within the R&D Collaboration Agreement, the following deliverables were identified: (i) cross-licenses for access to relevant IP, (ii) obligations to perform R&D services for immuno-biomarker discovery and signature identification, and (iii) obligations to provide sample profiling using immunotherapy clinical study assays.

The Company determined which deliverables within the arrangement have standalone value from the other undelivered elements, and identified the following separate units of accounting: (i) obligations to perform R&D services for immuno-biomarker discovery and signature identification and (ii) obligations to provide sample profiling using immunotherapy clinical study assays. The cross-licenses grant each party access to relevant IP of the other party to perform such party's obligations under the contract and to exploit the deliverables. The licenses are delivered at the inception of the arrangement and relate to R&D work performed under the platform. The Company does not sell the licenses separately as they are closely connected to the R&D activities and have little value to Roche without these other deliverables. Therefore, the licenses are combined with the other units of accounting identified under the immunotherapy testing platform development program and do not have standalone value.

Under this platform, Roche will reimburse the Company for certain R&D costs incurred related to the immuno-biomarker discovery and signature identification activities, as well as costs incurred in the development of immunotherapy assays for clinical studies. In addition, Roche will be required to make certain milestone payments upon the achievement of specified clinical events under the immunotherapy testing platform development program. Clinical milestone payments up to \$6,600,000 in the aggregate are triggered upon the initiation of Roche clinical trials using immunotherapy assays developed under the R&D Collaboration Agreement and are considered substantive. The R&D reimbursements and clinical milestone payments will be recognized using a proportional performance model when earned by the Company.

Circulating Tumor DNA (ctDNA) Platform Development Program

Under the ctDNA platform development program within the R&D Collaboration Agreement, the following deliverables were identified: (i) cross-licenses for access to relevant IP, (ii) obligations to perform R&D services for the development of a ctDNA clinical trial assay, including its analytical validation, and (iii) sample profiling resulting from the development of a ctDNA clinical assay.

The Company determined which deliverables within the arrangement have standalone value from the other undelivered elements, and identified the following separate units of accounting: (i) obligations to perform R&D services for the development of a ctDNA clinical trial assay and (ii) delivery of clinical sample profiling resulting from the development of a ctDNA clinical assay. The cross-licenses grant each party access to relevant IP of the other party to perform such party's obligations under the contract and to exploit the deliverables. The licenses are delivered at the inception of the arrangement and relate to R&D work performed under the platform. The Company does not sell the licenses separately as they are closely connected to the R&D activities and have little value to Roche without these other deliverables. Therefore, the licenses are combined with the other units of accounting identified under the ctDNA platform development program and do not have standalone value.

The Company was responsible for all R&D costs under the ctDNA platform development program. Roche was required to make certain milestone payments upon the achievement of specified events. Milestone payments up to \$12,000,000 in the aggregate were triggered upon successful analytical validation of a ctDNA assay and delivery of a ctDNA clinical trial assay for use in Roche clinical trials. All milestones were considered substantive and were recognized using a proportional performance model when earned by the Company.

Companion Diagnostics (CDx) Development Program

Under the CDx development program within the R&D Collaboration Agreement, the following deliverables were identified: (i) cross-licenses for access to relevant IP and (ii) obligations to perform R&D services for the development of CDx assays for use in connection with certain Roche products.

The Company determined which deliverables within the arrangement have standalone value from the other undelivered elements, and concluded all deliverables under the CDx development program represent a single unit of accounting. The cross-licenses grant each party access to relevant IP of the other party to perform such party's obligations under the contract and to exploit the deliverables. The licenses are delivered at the inception of the arrangement and relate to R&D work performed under the platform.

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The Company does not sell the licenses separately as they are closely connected to the R&D activities and have little value to Roche without these other deliverables. Therefore, the licenses are combined with the obligation to perform R&D services for the development of a CDx assay as a single unit of accounting.

Under this platform, Roche reimbursed the Company for certain costs incurred related to R&D under the CDx development program with respect to approved and investigational markers. In addition, Roche was required to make certain milestone payments upon the achievement of specified regulatory and commercial events under the CDx development program. Regulatory milestone payments of \$600,000 were triggered upon obtaining FDA approval of a premarket approval application for each CDx product developed under the arrangement and are considered substantive. The R&D reimbursements and regulatory milestone payments were recognized using a proportional performance model when earned by the Company. Commercial milestone payments were triggered upon the performance of a specified number of CDx assays for certain commercial clinical diagnostic uses. Any commercial milestone payments received by the Company were treated similar to royalties and recognized in their entirety when earned.

Termination of the R&D Collaboration Agreement

The R&D Collaboration Agreement may be terminated by either the Company or Roche on a program-by-program basis, upon written notice, in the event of the other party's uncured material breach. Roche may also terminate the entire R&D Collaboration Agreement or an individual program under the R&D Collaboration Agreement for any reason upon written notice to the Company, subject to certain exceptions. If the R&D Collaboration Agreement is terminated, license and IP rights are returned to each party and the Company must return to Roche or dispose of any unused samples delivered for profiling purposes. If Roche terminates the R&D Collaboration Agreement as a result of a breach by the Company, Roche retains the license rights granted to certain IP of the Company, and the Company shall refund to Roche any reserved capacity fees and database access fees previously received by the Company that were unused based on the passage of time up to termination for the given contract year. If the R&D Collaboration Agreement is terminated by Roche without cause, or by the Company due to a breach by Roche, the Company has a right to receive the contractual payments it would have expected to receive for each program had the agreement not been terminated.

Summary of the Ex-U.S. Commercialization Agreement

In addition to the R&D Collaboration Agreement, the Company entered into the Ex-U.S. Commercialization Agreement with Roche (as most recently amended and restated in February 2018, the "Ex-U.S. Commercialization Agreement") designed to facilitate the delivery of the Company's services outside the United States ("Ex-U.S.") in partnership with Roche. Pursuant to the Ex-U.S. Commercialization Agreement, on April 7, 2016, Roche obtained Ex-U.S. commercialization rights to the Company's existing services and to future co-developed services. The Company remains solely responsible for commercialization of its services within the United States. The selected geographic areas where Roche exercised its commercialization rights constitute the "Roche Territory." For those geographic areas that Roche does not select, the commercialization rights for such geographic areas revert back to the Company. The Ex-U.S. Commercialization Agreement is governed by the JMC. There is also a Joint Operational Committee ("JOC") that has been established to oversee the activities under the Ex-U.S. Commercialization Agreement. The JMC will have the responsibilities as outlined under the R&D Collaboration Agreement. The JMC and JOC, although considered deliverables under the arrangement, are immaterial in relation to the entire arrangement and therefore were not considered when allocating consideration.

Under the Ex-U.S. Commercialization Agreement, the following deliverables were identified: (i) the right, granted by means of a license, for Roche to market and sell the Company's services in the Roche Territory and (ii) obligations to perform sample profiling and other services relating to Company services sold by Roche in the Roche Territory. The Company concluded that the license is delivered at the inception of the arrangement. The Company does not sell the license separately as it is closely connected to the sample profiling and other services and has little value to Roche

without these services being performed. Therefore, the deliverables identified will be combined as a single unit of accounting under the Ex-U.S. Commercialization Agreement and revenue will be recognized as the service is performed for each test sold by Roche.

Roche will reimburse the Company for costs incurred in performing sample profiling and other services relating to Company services sold by Roche in the Roche Territory. These reimbursements will be recognized as revenue in the period the sample profiling or other service has been completed. In addition, Roche will be required to make a one-time milestone payment of \$10,000,000 when the aggregate gross margin on sales of certain of the Company's services reaches \$100,000,000 in the Roche Territory in any calendar year. In the event Roche does not satisfy its specified commercialization obligations under the agreement, including its obligation to launch Company services in specific countries within a specified timeframe, after a cure period, Roche may be required to make penalty payments to the Company. This milestone payment and these penalty payments will be treated similarly to royalties and recognized in their entirety when earned.

The Company is entitled to receive, on a quarterly basis, tiered royalty payments ranging from the mid-single digits to high-teens based on a percentage of the aggregate gross margin generated on sales of specified services in the Roche Territory during any calendar year. Royalty payments are recognized in the period when earned.

The Ex-U.S. Commercialization Agreement may be terminated by either the Company or Roche in its entirety or on a country-by-country or product-by-product basis, upon written notice, in the event of the other party's uncured breach of its material obligations under the agreement. Roche may also terminate the Ex-U.S. Commercialization Agreement without cause on a product-by-product and/or country-by-country basis, upon written notice to the Company, after the initial five-year term. If the Ex-U.S. Commercialization Agreement is terminated, the license and IP rights granted by the Company to Roche terminate. In addition, if Roche terminates the Ex-U.S. Commercialization Agreement as a result of a breach by the Company, Roche may seek damages via arbitration or be eligible to receive either a one-time payment reflecting the value of the terminated services or a royalty on sales of the terminated products based on the royalty Roche would have paid the Company for the terminated products had the Ex-U.S. Commercialization Agreement not been terminated.

Summary of the U.S. Education Agreement

Within the United States, the Company has entered into the U.S. Education Collaboration Agreement (the "U.S. Education Agreement") with Genentech, Inc. ("Genentech"), an affiliate of Roche. Genentech has agreed to engage its pathology education team to provide information and medical education to health care providers regarding comprehensive genomic profiling in cancer. The Company will pay Genentech on a quarterly basis for costs incurred by Genentech in conducting the education activities based on a number of factors. The total amount of payments to be made over the course of the arrangement is immaterial and all payments will be expensed as incurred.

IVD Collaboration Agreement

On April 6, 2016, the Company entered into a Master IVD Collaboration Agreement (the "IVD Collaboration Agreement") with F. Hoffmann-La Roche Ltd and Roche Molecular Systems, Inc., which memorializes in a definitive agreement the terms set forth in that certain Binding Term Sheet for an In Vitro Diagnostics Collaboration, by and between F. Hoffmann-La Roche Ltd and the Company, which was entered into in connection with the Company's strategic collaboration with Roche.

The IVD Collaboration Agreement provides terms for the Company and Roche to collaborate non-exclusively to develop and commercialize in vitro diagnostic versions of certain existing Company tests, including FoundationOne and FoundationOneHeme, and future Company tests, including those developed under the R&D Collaboration Agreement.

The IVD Collaboration Agreement expires on April 7, 2020, unless earlier terminated as provided therein. Roche also has the right, in its sole discretion, to extend the term of the IVD Collaboration Agreement for additional two year periods of time during any period of time in which Roche continues to hold at least 50.1% of the Company's capital stock. Either party may terminate the IVD Collaboration Agreement for an uncured breach of the agreement, or for insolvency or bankruptcy.

Biopharmaceutical Partner

In July 2012, the Company entered into a Master Services Agreement ("Services Agreement") with a biopharmaceutical partner ("Partner") to perform sample profiling at the Partner's request. The Services Agreement established the legal and administrative framework for the partnership between the entities. The Services Agreement also included a right for the Partner to initiate an exclusive negotiation with the Company for the development of a Companion Diagnostic ("CDx"). In March 2014, the Company and Partner expanded the scope of work by executing a Companion Diagnostic Agreement ("Amended Agreement"), thereby amending the Services Agreement to include the joint development and regulatory approval for a CDx. The Amended Agreement defined the term of the arrangement as the earlier of five years or receipt of certain regulatory approvals of a CDx. The Company concluded that the amendment to the original Services Agreement represented a material modification to the arrangement pursuant to ASC 605 as the Amended Agreement increased total consideration by a significant amount. Additionally, the deliverables under the Amended

Agreement changed significantly. At the date of the modification, there was no deferred revenue balance on the consolidated balance sheet related to the original Services Agreement with this Partner.

The Company identified seven deliverables under the Amended Agreement: (i) cross-licenses for access to relevant IP, (ii) obligations to continue to perform sample profiling pursuant to the original Services Agreement, (iii) obligations to perform specific R&D activities for the development of a CDx assay for use in connection with the Partner's product, (iv) obligations to assist in obtaining regulatory approval of the Partner's product at its request, (v) participation on a JSC to manage the overall development of the CDx assay, (vi) obligations to perform analytical validation of the CDx assay, and (vii) obligations to make the CDx assay commercially available, following any required regulatory approval. The obligation to make the CDx assay commercially available is dependent on successful development and regulatory approval. As such, the Company determined that this was a contingent deliverable and therefore arrangement consideration was not allocated to this deliverable.

The Company then determined the following deliverables were separate units of accounting: (i) obligations to continue to perform sample profiling pursuant to the original Services Agreement, (ii) obligations to perform specific R&D activities for the

development of a CDx assay for use in connection with the Partner's product and to provide assistance in obtaining regulatory approval of the Partner's product at its request, (iii) obligations to perform analytical validation of the CDx assay, and (iv) obligations to make the CDx assay commercially available, following any regulatory approval obtained. The cross-licenses grant each party access to relevant IP of the other party to perform such party's obligations under the contract and to exploit the deliverables. The licenses are delivered at the inception of the arrangement and primarily relate to the R&D development activities performed under the Amended Agreement. The Company does not sell the licenses separately as they are closely connected to the R&D development activities and have little value to the Partner without the performance of such activities. The JSC obligations do not have standalone value and are also closely connected to the R&D development activities under the Amended Agreement. The JSC obligations, although considered deliverables under the arrangement, are immaterial in relation to the entire arrangement. Therefore, the licenses and JSC obligations were combined with the R&D development activities, or unit (ii) identified above.

Under the Amended Agreement, the Partner pays a fixed fee for each sample to be profiled; will reimburse the Company for a portion of costs incurred in performing analytical validation of the CDx assay; and will be required to make certain substantive milestone and other payments upon the achievement of specified regulatory and clinical events tied to the development and commercialization of the CDx. The fixed or determinable consideration under the Amended Agreement was allocated to the units of accounting based on the BESP. Consideration allocated to sample profiling is recognized as samples are delivered, which is when the recognition criteria in ASC 605-25 has been satisfied. Consideration allocated to the R&D development activities and the analytical validation work is recognized using the proportional performance method. As of December 31, 2016, the CDx assay had achieved regulatory approval and the obligations under the Amended Agreement had been completed. The Company and the Biopharmaceutical Partner are currently negotiating additional work to be performed under a separate agreement.

Under the Amended Agreement, the Company recognized revenue of \$6,435,000, \$11,735,000 and \$10,618,000 for the years ended December 31, 2017, 2016 and 2015, respectively, which was primarily related to sample profiling and milestone payments received upon the achievement of specified regulatory and clinical events tied to the R&D development activities of the CDx.

4. Marketable Securities

The following table summarizes the available-for-sale securities held at December 31, 2017 and 2016 (in thousands):

	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
December 31, 2017				
Description:				
U.S. government agency securities and treasuries	\$ —	\$ —	\$ —	\$ —
Total	\$ —	\$ —	\$ —	\$ —
December 31, 2016				
Description:				
U.S. government agency securities and treasuries	\$ 79,411	\$ —	\$ (9)	\$ 79,402
Total	\$ 79,411	\$ —	\$ (9)	\$ 79,402

The estimated market value of marketable securities by maturity date is as follows (in thousands):

	December 31, 2017
	2016
Due in one year or less	\$—\$79,402
Total	\$—\$79,402

The amortized cost of available-for-sale securities is adjusted for amortization of premiums and accretion of discounts to maturity. There were no realized gains or losses recognized during the years ended December 31, 2017 and 2016, and as a result, the Company did not reclassify any amount out of accumulated other comprehensive loss for the same period.

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5. Property and Equipment

Property and equipment and related accumulated depreciation and amortization are as follows (in thousands):

	2017	2016
Lab equipment	\$36,533	\$34,727
Computer equipment	11,808	11,534
Software	10,694	5,429
Furniture and office equipment	3,959	3,638
Leasehold improvements	26,968	24,730
Construction in progress	7,523	4,512
Total cost	97,485	84,570
Less: accumulated depreciation and amortization	(56,366)	(43,084)
Total property and equipment, net	\$41,119	\$41,486

Depreciation and amortization expense for the years ended December 31, 2017, 2016, and 2015 was \$18,517,000, \$15,949,000, and \$10,600,000, respectively. The Company classifies capitalized internal-use software in lab equipment, computer equipment and software based on its intended use. Depreciation expense related to all capitalized internal-use software for the years ended December 31, 2017, 2016, and 2015 was \$1,057,000, \$213,000 and \$238,000, respectively. The remaining unamortized capitalized internal-use software costs at December 31, 2017 and 2016 was \$4,172,000 and \$1,052,000, respectively.

6. Accrued Expenses and Other Current Liabilities

Accrued expenses consisted of the following (in thousands):

	December, 31	
	2017	2016
Payroll and employee-related costs	\$19,630	\$13,044
Professional services	7,935	2,221
Property and equipment purchases	688	115
Other	8,492	5,198
Total accrued expenses and other current liabilities	\$36,745	\$20,578

7. Notes Payable and Debt

On July 31, 2017, the Company entered into an Amendment Letter Agreement (the “Amendment”) with Roche Finance Ltd. (“Roche Finance”), amending the Credit Facility Agreement, dated August 2, 2016, between the Company and Roche (the “Existing Credit Facility” and, as amended, the “Roche Credit Facility”).

The Amendment amends certain provisions of the Existing Credit Facility to provide for an extension of the period during which the Company may borrow funds from three to four years, ending August 2, 2020 (the “Draw Period”), and an increase in the available funds from \$100 million to \$200 million, of which \$80 million was made available immediately, \$70 million was made available upon the achievement of certain milestones, and \$50 million will be available upon the achievement of certain additional milestones. Pursuant to the Amendment, loans made under the Roche Credit Facility will bear interest at 6.5% per annum, as compared to 5% under the Existing Credit Facility. The Company shall pay Roche quarterly during the Draw Period and for six months thereafter accrued interest on the outstanding principal of the loans. Beginning six months after the Draw Period and for five years thereafter, the

Company shall pay Roche quarterly equal payments of principal, with accrued interest, in arrears until maturity of the Roche Credit Facility on February 2, 2026 (the “Final Maturity Date”). The Company shall also pay Roche a quarterly commitment fee of 0.4% per annum on the available commitment until the end of the Draw Period, as compared to 0.3% under the Existing Credit Facility. The other provisions of the Existing Credit Facility remain substantially unchanged. The proceeds from the Roche Credit Facility are intended to be used for research and development and commercialization, corporate development, and working capital management.

The Roche Credit Facility is secured by a lien on all of the Company’s tangible and intangible personal property, including, but not limited to, shares of its subsidiaries (65% of the equity interests in the case of foreign subsidiaries), intellectual property, insurance, trade and intercompany receivables, inventory and equipment, and contract rights, and all proceeds and services thereof (other than certain excluded assets).

The Roche Credit Facility contains certain affirmative covenants, including, among others, obligations for the Company to provide monthly and annual financial statements, to meet specified minimum cash requirements, to provide tax gross-up and

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indemnification protection, and to comply with laws. The Roche Credit Facility also contains certain negative covenants, including, among others, restrictions on the Company's ability to dispose of certain assets, to acquire another company or business, to encumber or permit liens on certain assets, to incur additional indebtedness (subject to customary exceptions), and to pay dividends on the Company's common stock. The Company was in compliance with its covenants under the Roche Credit Facility as of December 31, 2017.

The Roche Credit Facility contains customary events of default, including, among others, defaults due to non-payment, bankruptcy, failure to comply with covenants, breaches of representations and warranties, a change of control, a material adverse effect and judgment defaults. Upon the occurrence and continuation of an event of default following applicable notice and cure periods, amounts due under the Roche Credit Facility may be accelerated. The Company had no events of default under the Roche Credit Facility as of December 31, 2017.

As of December 31, 2017, the Company had \$60 million in borrowings outstanding and \$90 million of unused and available credit under the Roche Credit Facility. Interest expense was \$1.3 million and \$0.1 million for the years ended December 31, 2017 and 2016, respectively. Interest expense for the year ended December 31, 2017 included a \$0.3 million loss on extinguishment of debt due to the write-off of unamortized deferred financing costs in conjunction with the amendment to the Roche Credit Facility.

Principal payments during each of the next five years and thereafter are due as follows:

	December 31, 2017
2018	\$ —
2019	—
2020	—
2021	9,000
2022	12,000
2023 and thereafter	39,000
Total	\$ 60,000

The fair value of our debt is disclosed in Note 9, Fair Value Measurements to these consolidated financial statements.

8. Net Loss Per Common Share

The following potential common stock equivalents were not included in the calculation of diluted net loss per common share because the inclusion thereof would be antidilutive.

	Year Ended December 31,		
	2017	2016	2015
Outstanding stock options	666,717	1,267,329	1,684,783
Unvested restricted stock	1,164,040	1,297,054	969,758
Total	1,830,757	2,564,383	2,654,541

9. Fair Value Measurements

As referenced in Note 2, accounting principles provide guidance for using fair value to measure assets and liabilities based on a hierarchy of inputs and requires management to make judgments and consider factors specific to the asset or liability.

As of December 31, 2017 and 2016, the Company's financial instruments consisted of cash, cash equivalents, marketable securities, restricted cash, accounts receivable, accounts payable, accrued liabilities, and debt. The

carrying amount of cash and cash equivalents, restricted cash, accounts receivable, accounts payable, and accrued liabilities approximate their fair values because of the short-term nature of the instruments. The fair value of our outstanding debt balance approximates the carrying value as of the balance sheet date. The principal amount of our outstanding debt balance at December 31, 2017 and December 31, 2016 was \$60.0 million and \$0, respectively.

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The following tables present information about the Company's assets and liabilities that are measured at fair value on a recurring basis as of December 31, 2017 and 2016, and indicate the fair value hierarchy of the valuation techniques utilized to determine such fair value (in thousands):

Fair Value Measurement at December 31, 2017				
	Significant			
	Quoted Prices	Other	Significant	
	in Active	Observable	Unobservable	
	Markets	Inputs	Inputs	
	(Level 1)	(Level 2)	(Level 3)	Total
Assets:				
Cash equivalents	\$ 25,183	\$ —	\$ —	\$ 25,183
Total assets	\$ 25,183	\$ —	\$ —	\$ 25,183
Liabilities:				
Indebtedness to Roche	\$ —	\$ 60,000	\$ —	\$ 60,000
Total liabilities	\$ —	\$ 60,000	\$ —	\$ 60,000
Fair Value Measurement at December 31, 2016				
	Significant			
	Quoted Prices	Other	Significant	
	in Active	Observable	Unobservable	
	Markets	Inputs	Inputs	
	(Level 1)	(Level 2)	(Level 3)	Total
Assets:				
Cash equivalents	\$ 56,147	\$ —	\$ —	\$ 56,147
Marketable securities:				
U.S. government agency securities and treasuries	71,999	7,403	—	79,402
Total assets	\$ 128,146	\$ 7,403	\$ —	\$ 135,549

The Company measures eligible assets and liabilities at fair value, with changes in value recognized in the statement of operations and comprehensive loss. Fair value treatment may be elected either upon initial recognition of an eligible asset or liability or, for an existing asset or liability, if an event triggers a new basis of accounting. Items measured at fair value on a recurring basis during the years ended December 31, 2017 and 2016 include marketable securities and indebtedness to Roche. The Company did not elect to remeasure any other existing financial assets or liabilities, and did not elect the fair value option for any other financial assets and liabilities transacted during the years ended December 31, 2017 and 2016.

The fair values of the Company's marketable securities are determined through market and observable sources and have been classified as Level 1 and Level 2. These assets have been initially valued at the transaction price and subsequently valued utilizing third-party pricing services. The pricing services use many inputs to determine value, including reportable trades, benchmark yields, credit spreads, broker/dealer quotes, and other industry and economic events.

10. Stockholders' Equity

Common Stock

On April 7, 2015, the Company closed a strategic collaboration with Roche. The transaction included (1) a primary investment by Roche of \$250,000,000 in cash to purchase 5,000,000 newly issued shares of the Company's common stock at a purchase price of \$50.00 per share and (2) a tender offer in which Roche acquired 15,604,288 outstanding shares of the Company's common stock at a price of \$50.00 per share.

Common stockholders are entitled to one vote per share. Holders of common stock are entitled to receive dividends, when and if declared by the Board. The voting, dividend, and liquidation rights of the holders of the common stock are subject to, and qualified by, the rights of the holders of the preferred stock, of which no shares were outstanding at December 31, 2017.

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The Company has reserved for future issuance the following number of shares of common stock:

	December 31,	
	2017	2016
Unvested restricted stock	1,164,040	1,297,054
Common stock options outstanding	666,717	1,267,329
Shares available for issuance under the 2013 Stock Plan	3,273,334	2,398,031
Shares available for issuance under the 2013 Employee		
Stock Purchase Plan	788,503	788,503
Total	5,892,594	5,750,917

2010 and 2013 Stock Incentive Plans

In 2010, the Company adopted the Foundation Medicine, Inc. 2010 Stock Incentive Plan (the “2010 Stock Plan”) under which it granted restricted stock, incentive stock options (“ISOs”) and non-statutory stock options to eligible employees, officers, directors and consultants to purchase up to 1,162,500 shares of common stock. In the year ended December 31, 2013, the Company amended the 2010 Stock Plan to increase the number of shares of common stock available for issuance to 4,232,500.

In 2013, in conjunction with its IPO, the Company adopted the Foundation Medicine, Inc. 2013 Stock Option and Incentive Plan (the “2013 Stock Plan”) under which it may grant restricted and unrestricted stock, restricted stock units, ISOs, non-statutory stock options, stock appreciation rights, cash-based awards, performance share awards and dividend equivalent rights to eligible employees, officers, directors and consultants to purchase up to 1,355,171 shares of common stock. In connection with the establishment of the 2013 Stock Plan, the Company terminated the 2010 Stock Plan and the 512,568 shares which remained available for grant under the 2010 Stock Plan were included in the number of shares authorized under the 2013 Stock Plan. Shares forfeited or repurchased from the 2010 Stock Plan are returned to the 2013 Stock Plan for future issuance. On January 1, 2017 and 2016, the number of shares reserved and available for issuance under the 2013 Stock Plan increased by 1,461,671 and 1,380,949 shares of common stock, respectively, pursuant to a provision in the 2013 Stock Plan that provides that the number of shares reserved and available for issuance will automatically increase each January 1, beginning on January 1, 2014, by 4% of the number of shares of common stock issued and outstanding on the immediately preceding December 31 or such lesser number as determined by the compensation committee of the Board.

The terms of stock award agreements, including vesting requirements, are determined by the Board, or permissible designee thereof, subject to the provisions of the 2010 Stock Plan and the 2013 Stock Plan. Awards granted by the Company typically vest over a four-year period. The options are exercisable from the date of grant for a period of 10 years. The exercise price for stock options granted is equal to the closing price of the Company’s common stock on the applicable date of grant.

Restricted Stock

The 2010 Stock Plan and the 2013 Stock Plan allow for granting of restricted stock awards. For restricted stock awards granted to employees, the intrinsic value on the date of grant is recognized as stock-based compensation expense ratably over the period in which the restrictions lapse. For restricted stock awards granted to non-employees the intrinsic value is remeasured at each vesting date and at the end of the reporting period. The following table shows a roll forward of restricted stock activity pursuant to the 2010 Stock Plan and the 2013 Stock Plan:

	Number of
	Shares
Unvested at December 31, 2016	1,297,054
Granted	813,045
Vested	(720,074)
Forfeited	(225,985)
Unvested at December 31, 2017	1,164,040

Total stock-based compensation expense recognized for restricted stock awards was \$19,803,000, \$16,072,000, and \$5,615,000 for the years ended December 31, 2017, 2016, and 2015, respectively. The total grant date fair value of the restricted stock awards that vested during the years ended December 31, 2017, 2016, and 2015 approximated the stock-based compensation expense recorded during the respective periods.

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Stock Options

A summary of stock option activity under the 2010 Stock Plan and the 2013 Stock Plan is as follows (in thousands, except share and per share amounts):

		Weighted- Average	Weighted- Average	Remaining Contractual	Aggregate Intrinsic
	Number of Shares	Exercise Price	Term (In Years)		Value ⁽²⁾
Outstanding as of December 31, 2016	1,267,329	\$ 16.22	6.6		\$ 8,355
Granted	—	—			
Exercised	(549,280)	11.45			
Forfeited	(51,332)	24.39			
Outstanding as of December 31, 2017	666,717	\$ 19.53	5.6		\$ 32,450
Exercisable as of December 31, 2017	595,665	\$ 18.37	5.5		\$ 29,684
Vested and expected to vest at December 31, 2017 ⁽¹⁾	666,717	\$ 19.53	5.6		\$ 32,450

(1) This represents the number of vested options plus the number of unvested options expected to vest at the respective dates, based on unvested options.

(2) The aggregate intrinsic value was calculated based on the positive difference between the estimated fair value of the Company's common stock on December 31, 2017, or the date of exercise, as appropriate, and the exercise price of the underlying options.

The weighted-average fair value of options granted for the years ended December 31, 2016 and 2015 was \$11.00 and \$26.67, respectively. The Company recorded total stock-based compensation expense for stock options granted to employees, directors and non-employees from the 2010 Stock Plan and the 2013 Stock Plan of \$2,399,000, \$3,452,000, and \$5,561,000 during the years ended December 31, 2017, 2016, and 2015, respectively. The aggregate intrinsic value of stock options exercised during the years ended December 31, 2017, 2016, and 2015 was \$17,082,000, \$2,758,000, and \$42,325,000, respectively. As of December 31, 2017, unrecognized compensation cost of \$25,635,000 related to non-vested employee stock-based compensation arrangements is expected to be recognized over a weighted-average period of 2.3 years.

The Company recorded stock-based compensation expense in the consolidated statements of operations and comprehensive loss as follows (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Cost of revenue	\$2,214	\$ 1,880	\$980
Selling and marketing	4,162	3,944	3,474
General and administrative	10,887	9,289	4,272

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Research and development	4,939	4,411	2,450
Total	\$22,202	\$19,524	\$11,176

There were no stock options granted during the year ended December 31, 2017. The weighted-average assumptions used to estimate the fair value of stock options using the Black-Scholes option pricing model were as follows:

	Year Ended December 31,	
	2016	2015
Expected volatility	59.2 %	63.1 %
Risk-free interest rate	1.90 %	1.52 %
Expected option term (in years)	6.25	6.25
Expected dividend yield	0.0 %	0.0 %

2013 Employee Stock Purchase Plan

In September 2013, the Company adopted the Foundation Medicine, Inc. Employee Stock Purchase Plan (the “2013 Employee Stock Purchase Plan”), under which the Company is authorized to issue and sell shares of its common stock to participating employees. A total of 788,503 shares of common stock are available for issuance under the 2013 Employee Stock Purchase Plan.

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All employees who have been employed by the Company or its designated subsidiaries for at least six weeks and whose customary employment is for more than 20 hours a week are eligible to participate in the 2013 Employee Stock Purchase Plan. Any employee who owns, or would own upon such purchase under the 2013 Employee Stock Purchase Plan, 5% or more of the voting power or value of the Company's stock is not eligible to purchase shares under the 2013 Employee Stock Purchase Plan.

The Company may make one or more offerings to its employees to purchase stock under the 2013 Employee Stock Purchase Plan. The period of any offering shall not exceed six months in duration or overlap with another offering period. Each employee who is a participant in the 2013 Employee Stock Purchase Plan may purchase shares by authorizing payroll deductions of up to 10% of his or her eligible compensation during any offering. Unless the participating employee has previously withdrawn from the offering, his or her accumulated payroll deductions will be used to purchase common stock on the last business day of the offering period at a price equal to 85% of the fair market value of the common stock on the first business day or the last business day of the offering period, whichever is lower. During any offering period, an employee may not acquire shares constituting 5% or more of the voting power of the Company's stock, or such other maximum number established by the Company. During any calendar year, an employee may not purchase more than \$25,000 worth of common stock, valued at the start of the offering period. An employee's participation under the 2013 Employee Stock Purchase Plan terminates upon voluntary withdrawal or upon termination of employment. Accumulated payroll deductions at the time the employee's participation ends shall be refunded to the employee.

Although authorized, the 2013 Employee Stock Purchase Plan has not been implemented by the Company. As of December 31, 2016, no employees were participating in, and no shares have been purchased under, the 2013 Employee Stock Purchase Plan.

11. Income Taxes

The Company accounts for income taxes under ASC 740. Deferred income tax assets and liabilities are determined based upon differences between financial reporting and tax bases of assets and liabilities and are measured using the enacted tax rates and laws that will be in effect when the differences are expected to reverse.

For the years ended December 31, 2017, 2016, and 2015, the Company has not recorded a provision for federal or state income taxes as it has incurred cumulative net operating losses since inception.

On December 22, 2017, the Tax Cuts and Jobs Act ("the Act") was enacted in the United States. The Act reduces the U.S. federal corporate tax rate from a graduated rate of 35% to a flat rate of 21%, requires companies to pay a one-time transition tax on earnings of certain foreign subsidiaries that were previously tax deferred and creates new taxes on certain foreign sourced earnings. At December 31, 2017, we have not completed our accounting for the tax effects of enactment of the Act; however, we have made a reasonable estimate of the effects on our existing deferred tax balances and the one-time transition tax. For the year ended December 31, 2017, we recognized no transition tax.

As of December 31, 2017, the Company had federal and state net operating loss carryforwards of approximately \$418,700,000 and \$363,600,000, respectively, which were available to reduce future taxable income. The net operating loss carryforwards expire at various times beginning in 2030 for federal purposes and 2019 for state purposes. As a result of adopting FASB ASU 2016-09 in the first quarter of 2017, the Company recorded a cumulative-effect adjustment to retained earnings of \$14.9 million to record a net deferred tax asset related to excess equity based compensation tax deductions relative to these tax attribute carryforwards. The deferred tax asset was offset by a corresponding adjustment to the valuation allowance.

The Company also had federal and state tax credits of approximately \$11,200,000 and \$7,400,000, respectively, which may be used to offset future tax liabilities. These tax credit carryforwards will expire at various times beginning in 2030 for federal purposes and 2018 for state purposes.

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 stockholders 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. Following the Roche transaction, as discussed in detail in Note 3, the Company conducted a Section 382 study covering the period from corporate inception through April 7, 2015, which was the closing date of the Roche transaction. This study concluded that limitations on the Company's NOL carryforwards are not restrictive, with the exception of approximately \$1,500,000 of pre-March 31, 2010 NOLs.

The Company has not recorded any reserves for uncertain tax positions as of December 31, 2017 or 2016. If the Company did record a reserve, it would be a component of income tax expense. The Company has not yet conducted a study of research and

development credit carryforwards. This study may result in an adjustment to the Company's research and development credit carryforwards; however, until a study is completed and any adjustment is known, no amounts are being presented as an uncertain tax position. As of December 31, 2017, the Company had no accrued interest or penalties related to uncertain tax positions. 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 tax years in which a loss carryforward is available. The Company is not currently under examination by the Internal Revenue Service or any other jurisdictions for any tax years.

The principal components of the Company's deferred tax assets are as follows:

	As of December 31,	
	2017	2016
Deferred tax assets:		
Net operating loss carryforwards	\$ 111,819	\$ 102,963
Deferred revenue	1,593	2,240
Accrued bonus	3,609	2,963
Deferred rent	3,400	4,137
Nonaccrual receivables	18,510	8,437
Other	3,127	3,509
Research and development credits	17,067	12,512
Gross deferred tax assets	159,125	136,761
Deferred tax liability	(40)	(3,124)
Valuation allowance	(159,085)	(133,637)
Net deferred tax assets	\$—	\$—

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 of the deferred tax assets will not be realized. After consideration of all the evidence, both positive and negative, the Company has recorded a valuation allowance against its deferred tax assets at December 31, 2017 and 2016, respectively, because the Company's management has determined that it is more likely than not that these assets will not be fully realized. The increase in the valuation allowance of \$25,400,000 in 2017 primarily relates to the net loss incurred by the Company during that period, offset by the reduction in the net deferred taxes from the federal statutory rate change. As a result of the Act, we remeasured certain deferred tax assets and liabilities based on the rates at which they are anticipated to reverse in the future, which is generally 21%. This resulted in a decrease to our gross deferred tax assets and a corresponding decrease in our valuation allowance of \$63.3 million.

A reconciliation of the income tax expense at the federal statutory tax rate to the Company's effective income tax rate follows:

	Year Ended December 31,		
	2017	2016	2015
Statutory tax rate	34.0 %	34.0 %	34.0 %
State taxes, net of federal benefit	5.6 %	3.3 %	4.8 %
Permanent differences	4.1 %	(0.9)%	(1.0)%

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Research and development credits	2.2	%	2.6	%	4.5	%
Federal deferred rate change	(39.2)	%	0.0	%	0.0	%
Other	(0.1))%	(2.4))%	(0.6))%
Change in valuation allowance	(6.6))%	(36.6))%	(41.7))%
Effective tax rate	0.0	%	0.0	%	0.0	%

12. Commitments and Contingencies

150 Second Street

In 2013, the Company signed a lease (the “Headquarters Lease”) for approximately 61,591 square feet of office and laboratory space (the “Existing Premises”) at 150 Second Street in Cambridge, Massachusetts (the “Headquarters Building”). The Headquarters Lease commenced in September 2013, and initially had an eight year expected term. The Headquarters Lease is subject to fixed rate escalation increases and the landlord waived the Company’s rent obligation for the first 10.5 months of the lease, having an initial value of \$3,300,000. The landlord also agreed to fund up to \$9,239,000 in tenant improvements. The Company recorded the tenant improvements as leasehold improvements and deferred rent on the consolidated balance sheet. Deferred rent is amortized as a reduction in rent expense over the term of the Headquarters Lease. The Company recognizes rent expense on a straight-line basis over

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the expected lease term. In connection with the Company's termination of its prior lease at One Kendall Square, the rent abatement was reduced to approximately \$1,841,000 and the expected term of the Headquarters Lease was reduced to 7.5 years. The Company began to record rent expense in April 2013 upon gaining access to and control of the space. Upon execution of the Headquarters Lease, the Company paid a security deposit of \$1,725,000 which was reduced to approximately \$864,000 in 2014. The security deposit is included in restricted cash in the accompanying balance sheet as of December 31, 2017 and December 31, 2016.

On June 30, 2014, the Company executed a Second Amendment to Lease amending the Headquarters Lease, resulting in the Company leasing 8,164 square feet of additional space in the Headquarters Building commencing in November 2014. The Company began recording rent expense upon gaining access to and control of the additional space in July 2014. The landlord also funded \$1,020,500 in normal tenant improvements.

On September 30, 2016, the Company entered into three separate yet related agreements to expand its premises at the Headquarters Building. In connection with these agreements, on May 1, 2017 ("Effective Date"), bluebird bio, Inc. ("Bluebird") surrendered approximately 53,455 square feet of space previously leased by Bluebird in the Headquarters Building ("Bluebird Premises"), and the Company became the sole tenant of the Headquarters Building, leasing approximately 123,210 square feet of office and laboratory space. The three agreements include a Third Amendment to Lease with the landlord to amend the Headquarters Lease ("Third Amendment"), an Assignment and Assumption of Lease (the "Assignment") with Bluebird for the assignment of the lease dated as of June 3, 2013, as amended, between the landlord and Bluebird (the "Bluebird Lease") to the Company, and a Consent to Assignment (the "Consent"), among the landlord, the Company and Bluebird, providing required consents for the assignment of the Bluebird Lease to the Company.

On the Effective Date, the Headquarters Lease was amended as provided in the Third Amendment. Pursuant to the Third Amendment: (i) the Company was entitled to a partial abatement of base rent payable under the Headquarters Lease for each of the first two calendar months following the Effective Date (provided the Company was not in default under the Third Amendment or the Bluebird Lease), (ii) the term of the Headquarters Lease was extended through April 30, 2024, (iii) the Company has the right to extend the term for one subsequent five-year period, (iv) the Company will pay annual base rent on the Existing Premises (ranging from \$70.51 to \$83.42 per square foot) in accordance with the rent schedule attached to the Third Amendment, with semi-annual adjustments beginning in January and July of each calendar year, and (v) the landlord provided \$2,500,000 in tenant improvement allowances to improve the Headquarters Building, including the Existing Premises, the Bluebird Premises and the lobby. The Company recorded the tenant improvements as leasehold improvements and deferred rent on the consolidated balance sheet. Pursuant to the Assignment, the Company assumed the Bluebird Lease and will pay annual base rent on the Bluebird Premises (ranging from \$62.83 to \$72.84 per square foot) in accordance with the Bluebird Lease. The Third Amendment also requires the Company to increase its security deposit by amending the letter of credit for the Headquarters Lease to \$1,771,009, and to amend the terms of the letter of credit to serve as security for both the Third Amendment and the Bluebird Lease.

The Company recorded rent expense of \$5,983,000, \$2,534,000, and \$2,534,000 for the years ended December 31, 2017, 2016 and 2015, respectively, associated with the Headquarters Lease.

Ten Canal Park Lease

The Company signed a facility lease (the "Ten Canal Lease") on March 11, 2015 for office space at Ten Canal Park in Cambridge, Massachusetts (the "Leased Space"). The Ten Canal Lease commenced on March 12, 2015, which was the date the landlord received the Letter of Credit (as defined in the Ten Canal Lease), and expires on August 31, 2020. The Company began paying rent of \$172,850 per month, commencing in August 2015, for the first year with scheduled escalating rent payments thereafter, and received \$1,995,550 from the landlord for tenant improvements to the Leased Space. In connection with the Ten Canal Lease, the Company provided a security deposit in the amount of \$1,037,000, which was reduced to approximately \$530,550 in June 2015. The security deposit is included in restricted

cash in the accompanying balance sheets as of December 31, 2017 and 2016.

The Company recorded rent expense of \$1,630,000, \$1,630,000, and \$1,279,000 for the years ended December 31, 2017, 2016 and 2015, respectively, associated with the Ten Canal Lease.

Research Triangle Park Lease Agreement

On April 18, 2016, the Company entered into a facility lease agreement (the “ARE Lease”) with ARE-7030 Kit Creek, LLC (the “Landlord”) for the lease of approximately 48,236 square feet of office and laboratory space located in a building at 7010 Kit Creek Road, Research Triangle Park, North Carolina (the “Premises”). The term of the ARE Lease commenced on April 18, 2016 and expires on January 31, 2022. Upon certain conditions set forth in the ARE Lease, the Company has the option to extend the ARE Lease for two additional five-year terms.

The Company will pay rent of \$86,423 per month, beginning in January 2017, subject to annual 3% increases beginning February 1, 2018, throughout the term of the ARE Lease. The Company is entitled to an abatement of fixed rent for the first nine months of the term. In addition, the Company, at its election, shall receive up to \$1,205,900 from the Landlord for tenant

improvements to the Premises, a certain portion of which may be repayable to the Landlord as specified in the ARE Lease. The Company was not obligated to provide a security deposit in connection with signing the ARE Lease.

The Company recorded rent expense of \$923,000 and \$675,000 for the years ended December 31, 2017 and 2016, respectively, associated with the ARE Lease.

Palo Alto, CA Lease

On April 21, 2017, the Company entered into a Second Amendment to Lease (the “Palo Alto Amendment”) with PAOC, LLC (“PAOC”) amending the lease between the Company and PAOC for the lease of approximately 1,975 square feet of office space located in a building at 525 University Avenue, Palo Alto, California. The Palo Alto Amendment extended the term of the lease for a period of 60 months, expiring on April 30, 2022.

The Company will pay rent of \$17,775 per month, beginning in June 2017, subject to annual 3% increases beginning May 1, 2018, throughout the term of the amended lease. The Company is entitled to an abatement of fixed rent for the month of May 2017.

The Company recorded rent expense of \$220,000 for the year ended December 31, 2017, associated with the Palo Alto Amendment.

Penzberg, Germany Lease

On September 9, 2016, the Company entered into a facility lease agreement (the “Penzberg Lease”) with Roche Diagnostics, GmbH (“Roche Diagnostics”) for the lease of office and laboratory space located in Penzberg, Germany (the “Leased Premises”). The initial term of the Penzberg Lease commenced on September 9, 2016 and expires on September 8, 2021. Upon certain conditions set forth in the Penzberg Lease, the Company has the option to extend the term of the Penzberg Lease for additional two-year terms. Commencing March 1, 2017, but not later than May 1, 2017, at the request of the Company, the Penzberg Lease shall be expanded to include additional space as described in the Penzberg Lease.

The Company began paying rent of approximately \$22,000 per month in September 2016 (“Base Rent”). Base Rent will increase upon the Company exercising its option to take possession of the additional space in 2017, but the rate of the Base Rent is fixed through December 31, 2017. Commencing January 1, 2018, Base Rent may be adjusted by Roche Diagnostics up to a maximum increase of 2% per annum, compared with Base Rent for the immediately preceding year. The Company is not obligated to provide a security deposit in connection with the Penzberg Lease.

The Company recorded rent expense of \$286,000 and \$79,000 for the years ended December 31, 2017 and 2016, respectively, associated with the Penzberg Lease.

As of December 31, 2017, the minimum future rent payments under the Company’s lease agreements were as follows:

2018	\$12,218
2019	12,550
2020	11,947
2021	10,893
2022	9,748
Thereafter	13,242
Total minimum lease payments	\$70,598

Supply Agreement

In July 2013, the Company entered into a five-year supply, service and support agreement, which was most recently amended in April 2017 (the “Supply Agreement”), with Illumina, Inc. (“Illumina”) for Illumina to provide products and services that support and can be used for the gene sequencing component of its molecular testing activities. During the term of the Supply Agreement, Illumina will supply the Company and our German subsidiary with sequencers, reagents and other consumables for use with the Illumina sequencers, and service contracts for the maintenance and repair of the sequencers.

During the term of the Supply Agreement, the Company is required to make a rolling forecast of its expected needs for reagents and other consumables, and it may place purchase orders for reagents and other consumables that conform to such forecast. Illumina may not unreasonably reject conforming purchase orders and will, in its reasonable discretion, accept additional purchase orders for quantities of reagents and other consumables beyond the Company’s forecast requirements. During each six-month period the Company has a binding obligation to purchase an amount of reagents and other consumables equal to the greater of a percentage of its six-month forecast and a fixed minimum amount. Subject to discounts that vary depending on the volume of hardware and reagents

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and other consumables ordered, the price for sequencers and for service contracts is based on Illumina list prices, and the price for reagents and other consumables is based on contract prices that are fixed for a set period of time and may increase thereafter subject to limitations. The Supply Agreement does not require the Company to order minimum amounts of hardware, or to use exclusively the Illumina platform for conducting its sequencing. As of December 31, 2017, the Company's minimum remaining purchase commitment for the remainder of the term of the Supply Agreement was not lower than approximately \$11,743,000.

Legal Matters

From time to time, the Company is party to litigation arising in the ordinary course of its business. As of December 31, 2017, the Company was not currently a party to any significant litigation. On July 28, 2017, a purported stockholder of the Company filed a putative class action in the U.S. District Court for the District of Massachusetts, against the Company and certain of its current and former executives, captioned Mahoney v. Foundation Medicine, Inc., et al., No. 1:17-cv-11394. The complaint alleges violations of Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 and Rule 10b-5 thereunder based on allegedly false and misleading statements when providing 2015 financial guidance. The lawsuit seeks among other things, unspecified compensatory damages in connection with the Company's allegedly inflated stock price between February 26, 2014 and November 3, 2015, interest, attorneys' fees and costs, and unspecified equitable/injunctive relief. On December 22, 2017, the plaintiffs filed an amended class action complaint alleging violations of Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 and Rule 10b-5 thereunder based on allegedly false and misleading statements concerning certain of the Company's tests. On February 20, 2018, the Company moved to dismiss the complaint for failure to state a claim. We believe this case is without merit and, therefore, continue to vigorously defend ourselves against the allegations.

13. Related Party Transactions

Roche Holdings, Inc. and its affiliates

Related-party molecular information services revenue from Roche for the years ended December 31, 2017, 2016, and 2015 was \$25,458,000, \$21,493,000, and \$13,132,000, respectively, which was earned under the Molecular Information Platform Program and Ex-U.S. Commercialization Agreement.

Related-party pharma research and development services revenue from Roche for the years ended December 31, 2017, 2016, and 2015 was \$24,828,000, \$21,984,000, and \$312,000, respectively, from the reimbursement of R&D costs under the CDx Development, Immunotherapy Testing Platform Development and other programs.

Costs of related-party molecular information services from Roche were \$9,014,000, \$3,770,000, and \$2,736,000 for the years ended December 31, 2017, 2016, and 2015, respectively, which consisted of costs incurred under the Molecular Information Platform Program and costs related to the delivery of services outside of the United States under the Ex-U.S. Commercialization Agreement.

At December 31, 2017, \$10,159,000 and \$3,742,000 was included in total accounts receivable and deferred revenue, respectively, related to this arrangement. At December 31, 2016, \$2,007,000 and \$3,747,000 was included in total accounts receivable and deferred revenue, respectively, related to this arrangement.

There were no other material Roche-related transactions as of December 31, 2017 and 2016 and for each of the years ended December 31, 2017, 2016, and 2015.

Other related party transactions

The Company recognized revenue of \$481,000, \$1,631,000, and \$1,716,000 in the years ended December 31, 2017, 2016, and 2015, respectively from an arrangement with an entity affiliated with a former member of the Company's Board executed in the year ended December 31, 2013. Of these amounts, there were no receivables included in

accounts receivable as of December 31, 2017 and 2016, respectively.

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14. Selected Quarterly Financial Data (Unaudited)

The following table contains quarterly financial information for fiscal years 2017 and 2016. The Company believes that the following information reflects all normal recurring adjustments necessary for a fair statement of the information for the periods presented.

	First	Second	Third	Fourth
	Quarter	Quarter	Quarter	Quarter
2017				
Revenue	\$26,328	\$35,004	\$42,658	\$48,913
Costs and expenses	\$73,015	\$79,318	\$75,084	\$86,429
Net loss	\$(46,453)	\$(44,258)	\$(32,644)	\$(38,111)
Basic and diluted net loss per share	\$(1.31)	\$(1.24)	\$(0.90)	\$(1.05)
2016				
Revenue	\$30,378	\$28,237	\$29,426	\$28,824
Costs and expenses	\$47,863	\$57,439	\$60,850	\$64,529
Net loss	\$(17,307)	\$(28,994)	\$(31,282)	\$(35,609)
Basic and diluted net loss per share	\$(0.50)	\$(0.84)	\$(0.90)	\$(1.02)