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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, 2019

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 001-35817

CANCER GENETICS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**04-3462475**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

201 Route 17 North 2nd Floor
Rutherford, NJ 07070
(201) 528-9200
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

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

Title of each class	Trading Symbol	Name of each exchange on which registered
Common Stock, $0.0001 par value per share	**CGIX**	**NASDAQ Capital Market**

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

Indicate by check 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 if 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 every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes: ☒ No: ☐

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

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant was $8.0 million on June 30, 2019, the last business day of the registrant's most recently completed second fiscal quarter, based on the closing price of $4.80 on that date.

Indicate the number of shares outstanding of each of the registrant's classes of common equity, as of May 28, 2020:

Class	Number of Shares

Common Stock, $.0001 par value	2,107,598

Documents incorporated by reference

None.

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EXPLANATORY NOTE

As previously disclosed on Cancer Genetics, Inc.'s Form 8-K filed with the Securities and Exchange Commission (the "SEC") on March 30, 2020, the filing of this Annual Report on Form 10-K for the period ended December 31, 2019 (the "2019 Annual Report") was delayed due to circumstances related to the novel coronavirus ("COVID-19") and its impact on the Company's operations. In particular, COVID-19 has caused severe disruptions in critical personnel's transportation and limited access to the Company's facilities in Rutherford, New Jersey (just outside of Manhattan) negatively impacting the ability of its staff and professional advisors to perform their various functions. This has, in turn, delayed the Company's ability to complete its audit and prepare the 2019 Annual Report. The Company relied on the SEC's Order Under Section 36 of the Securities Exchange Act of 1934 Modifying Exemptions From the Reporting and Proxy Delivery Requirements for Public Companies, dated March 4, 2020 and amended March 25, 2020 (Release Nos. 34-88318 and 34-88465), to delay the filing of the 2019 Annual Report.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This report contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements include all statements that are not historical facts. In some cases, you can identify forward-looking statements by terms such as "may," "will," "should," "could," "would," "expects," "plans," "anticipates," "believes," "estimates," "projects," "predicts," "potential," or the negative of those terms, and similar expressions and comparable terminology intended to identify forward-looking statements. These statements reflect the Company's current views with respect to future events and are based on assumptions and subject to risks and uncertainties including those set forth below and under Part I, Item 1A, "Risk Factors" in this annual report on Form 10-K. Given these uncertainties, you should not place undue reliance on these forward-looking statements. These forward-looking statements represent the Company's estimates and assumptions only as of the date of this annual report on Form 10-K and, except as required by law, the Company undertakes no obligation to update or review publicly any forward-looking statements, whether as a result of new information, future events or otherwise after the date of this annual report on Form 10-K. You should read this annual report on Form 10-K and the documents referenced in this annual report on Form 10-K and filed as exhibits completely and with the understanding that the Company's actual future results may be materially different from what the Company expects. The Company qualifies all of its forward-looking statements by these cautionary statements. Such statements may include, but are not limited to, statements concerning the following:

- the Company's ability to adapt its business for future developments in light of the global outbreak of the novel coronavirus, which continues to rapidly evolve;
- the Company's ability to achieve profitability by increasing sales of the Company's preclinical CRO services focused on oncology and immuno-oncology;
- the Company's ability to raise additional capital to repay its indebtedness and meet its liquidity needs;
- the Company's ability to execute on its marketing and sales strategy for its preclinical research services and gain acceptance of its services in the market;
- the Company's ability to keep pace with rapidly advancing market and scientific developments;
- the Company's ability to satisfy U.S. (including FDA) and international regulatory requirements with respect to its services;
- the Company's ability to maintain its present customer base and obtain new customers;
- competition from preclinical CRO services companies, many of which are much larger than the Company in terms of employee base, revenues and overall number of customers and related market share;
- the Company's ability to maintain the Company's clinical and research collaborations and enter into new collaboration agreements with highly regarded organizations in the field of oncology so that, among other things, the Company has access to thought leaders in advanced preclinical and translational science;
- potential product liability or intellectual property infringement claims;
- the Company's dependency on third-party manufacturers to supply it with instruments and specialized supplies;
- the Company's ability to attract and retain a sufficient number of scientists, clinicians, sales personnel and other key personnel with extensive experience in oncology and immuno-oncology, who are in short supply;
- the Company's ability to obtain or maintain patents or other appropriate protection for the intellectual property in its proprietary tests and services;
- the Company's ability to effectively manage its international businesses in Australia, Europe and China, including the expansion of its customer base and volume of new contracts in these markets;
- the Company's dependency on the intellectual property licensed to the Company or possessed by third parties; and
- the Company's ability to adequately support future growth.

PART I

Item 1. Business.

The share numbers throughout this Annual Report on Form 10-K reflect a 1-for-30 reverse stock split that the Company effected October 24, 2019.

Overview

Cancer Genetics, Inc. (the "Company") supports the efforts of the biotechnology and pharmaceutical industries to develop innovative new drug therapies. Until the closing of the Business Disposals (as defined below) in July 2019, the Company was an emerging leader in enabling precision medicine in oncology by providing multi-disciplinary diagnostic and data solutions, facilitating individualized therapies through the Company's diagnostic tests, services and molecular markers. Following the Business Disposals, the Company currently has an extensive set of anti-tumor referenced data based on predictive xenograft and syngeneic tumor models from the acquisition of vivoPharm, Pty Ltd. (“vivoPharm”) in 2017, to provide Discovery Services such as contract research services, focused primarily on unique specialized studies to guide drug discovery and development programs in the oncology and immuno-oncology fields. The Company's tests and techniques target a wide range of indications, covering all ten of the top cancers in prevalence in the United States, with additional unique capabilities offered by its FDA-cleared Tissue of Origin® test for identifying difficult to diagnose tumor types or poorly differentiated metastatic disease.

The Company offers preclinical services such as predictive tumor models, human orthotopic xenografts and syngeneic immuno-oncology relevant tumor models in its Hershey, PA facility, and is a leader in the field of immuno-oncology preclinical services in the United States. This service is supplemented with GLP toxicology and extended bioanalytical services in the Company's Australian-based facilities in Clayton, VIC, and Gilles Plains, SA (effective in February 2020).

Historical Business and Key Strategic Divestitures

The Company was founded in 1999 to conduct critical research and development of innovative diagnostic tests for the benefit of helping physicians treat complicated cancer cases for patients with blood-borne disease. Upon becoming a publicly-traded company through an initial public offering in 2013, the Company completed a series of acquisitions which expanded the footprint of the business globally, and enlarged the Company's capabilities to offer unique diagnostic tests and services to biotechnology and pharmaceutical companies, and extended the Company's development and patient care expertise to solid tumor cancers. Until the consummation of the Business Disposals (as defined below) in July 2019, the Company was an emerging leader in enabling precision medicine in oncology by providing multi-disciplinary diagnostic and data solutions, facilitating individualized therapies through the Company's diagnostic tests, services and molecular markers.

The Company utilized relatively the same proprietary and nonproprietary diagnostic tests, laboratory developed tests (LDTs) and technologies across all of its service offerings to deliver results-oriented information important to cancer treatment and patient management. The Company's portfolio primarily included comparative genomic hybridization (CGH) microarrays, gene expression tests, next generation sequencing (NGS) panels, and DNA fluorescent in situ hybridization (FISH) probes. The Company provided testing services from its Clinical Laboratory Improvement Amendments (“CLIA”) - certified and College of American Pathologists (“CAP”) - accredited laboratories in Rutherford, NJ and Raleigh, NC.

BioServe Biotechnologies

On April 26, 2018, the Company sold its India subsidiary, BioServe Biotechnologies (India) Private Limited (“BioServe”) to Reprocell, Inc., for $1.8 million.

siParadigm, Inc.

On July 5, 2019, the Company entered into an asset purchase agreement (the “Clinical Agreement”) by and among the Company and siParadigm, LLC (“siParadigm”), pursuant to which the Company sold to siParadigm certain assets associated with the Company’s clinical laboratory business (the “Clinical Business,” and such assets, the “Designated Assets”) and agreed to cease operating the Clinical Business. The Designated Assets include intellectual property, equipment and customer lists associated with the Clinical Business, and for a period the Company was providing certain transitional services to siParadigm pursuant to the Clinical Agreement. The cash consideration paid by siParadigm at closing was approximately $747 thousand, which includes approximately $45 thousand for certain equipment plus a $1.0 million advance payment of the Earn-Out (as defined below), less approximately $177 thousand of supplier invoices paid directly by siParadigm, an adjustment of $11 thousand and transaction

costs of approximately $110 thousand. The Earn-Out, to be paid over the 24 months post-closing, is based on fees for all tests performed by siParadigm for the Company's clinical customers during the 12-month period following the closing (the "Earn-Out"). The Clinical Business sale (together with the BioPharma Disposal, defined below, the "Business Disposals") was completed on July 8, 2019.

Interpace Biosciences, Inc.

On July 15, 2019, the Company entered into a secured creditor asset purchase agreement (the "BioPharma Agreement") by and among the Company, Gentris, LLC, a wholly-owned subsidiary of the Company, Partners for Growth IV, L.P. ("PFG"), Interpace Biosciences, Inc. (formerly known as Interpace Diagnostics Group, Inc.) ("IDXG") and a newly-formed subsidiary of IDXG, Interpace BioPharma, Inc. ("Buyer"). The BioPharma Agreement provided for a consensual private foreclosure sale by PFG of all assets relating to the Company's BioPharma Business, including the lease agreements to its CLIA certified and CAP accredited laboratories in Rutherford, NJ and Raleigh, NC (as defined in the BioPharma Agreement) to Buyer (the "BioPharma Disposal"). The BioPharma Disposal was consummated on July 15, 2019.

Pursuant to the BioPharma Agreement, Buyer purchased from PFG certain assets and assumed certain liabilities of the Company relating to the BioPharma Business, providing as gross consideration $23.5 million, less certain closing adjustments totaling $2.0 million, of which $7.7 million was paid in the form of a promissory note issued by Buyer to the Company (the "Excess Consideration Note") and the remainder was paid to PFG in cash. PFG utilized the cash proceeds to satisfy the outstanding balances of the Silicon Valley Bank ("SVB") asset-based revolving line of credit ("ABL") and the $6.0 million term note to PFG ("PFG Term Note"), and to satisfy certain transaction expenses. The balance of approximately $2.3 million was delivered to the Company along with the Excess Consideration Note. The Excess Consideration Note which required interest-only quarterly payments at a rate of 6% per year, was settled on October 24, 2019 for $6.0 million, including interest of $24 thousand. The Buyer withheld from the settlement of the Excess Consideration Note approximately $775 thousand for a net worth adjustment (assets less liabilities) of the BioPharma business ("Net Worth"), $153 thousand to secure collection of certain older accounts receivable of the Company purchased by Buyer ("AR Holdback") and an additional $735 thousand as security for indemnification obligations of the Company for any breaches of certain limited warranties and covenants of the Company and other specified items, subject to agreed-upon caps, baskets and survival periods as set forth in the BioPharma Agreement ("Indemnification Holdback"). The Company received the full amounts of the AR Holdback and the Indemnification Holdback in April and May 2020, respectively.

The Company and Buyer also entered into a transition services agreement (the "TSA") pursuant to which the Company and Buyer are providing certain services to each other to accommodate the transition of the BioPharma Business to Buyer. In particular, the Company agreed to provide to Buyer, among other things, certain personnel services, payroll processing, administration services and benefit administration services (collectively, the "Payroll and Benefits Services"), for a period not to exceed six months from July 15, 2019, subject to the terms and conditions of the TSA, in exchange for payment or reimbursement, as applicable, by Buyer for the costs related thereto, including salaries and benefits for certain of the Company's BioPharma employees during the transition period. The Company continues to provide the Payroll and Benefits Services under the TSA with respect to a limited number of employees. In addition, the Buyer is reimbursing the Company, in part, for the salaries and benefits of John A. Roberts, the Company's Chief Executive Officer, and Glenn Miles, the Company's Chief Financial Officer.

The Business Disposals have been classified as discontinuing operations in conformity with US GAAP. Accordingly, BioServe, BioPharma and Clinical operations and balances have been reported as discontinuing operations and removed from all financial disclosures of continuing operations for the years ended December 31, 2019 and 2018.

Continuing Operations

With the acquisition of vivoPharm on August 15, 2017, the Company enhanced its Discovery Services capabilities. The Company is currently executing a strategy of partnering with pharmaceutical and biotech companies, academic institutions and governmental research centers as oncology diagnostic specialists by supporting therapeutic discovery. The Company's customers are increasingly attracted to working with it on preclinical development of biomarker detection methods, response to immuno-oncology directed novel treatments and early prediction of clinical outcomes which is supported by its extended portfolio of orthotopic, xenografts and syngeneic tumor test systems as a unique service offering in the immuno-oncology space.

vivoPharm is a contract research organization ("CRO") that specializes in planning and conducting unique, specialized studies to guide drug discovery and development programs with a concentration in oncology and immuno-oncology. These studies range from early compound selection to developing comprehensive sets of *in vitro* and *in vivo* data, as needed for FDA Investigational New Drug ("IND") applications. vivoPharm has developed industry recognized capabilities in early phase development and discovery, especially in immuno-oncology models, tumor micro-environment studies, specialized pharmacology services, and

PDx (patient derived xenograft) model studies that support basic discovery, preclinical and phase 1 clinical trials. vivoPharm's studies have been utilized to support over 250 IND submissions to date across a range of therapeutic indications, including lymphomas, leukemia, GI-cancers, liver cancer, pancreatic cancer, non-small cell lung cancer, and other non-cancer rare diseases. vivoPharm is presently serving over 50 biotechnology and pharmaceutical companies across four continents in over 100 studies and trials with highly specialized development, clinical and preclinical research. Over the past 15 years, vivoPharm has also generated an extensive library of human xenograft and syngeneic tumor models, including subcutaneous, orthotopic and metastatic models. vivoPharm offers services in assessment of safety, toxicology and bioanalytic services for small and bio-molecules.

The Company continues to leverage vivoPharm's international presence to access global market opportunities. vivoPharm's headquarters in Australia specializes in safety and toxicology studies, including mammalian, genetic and *in vitro*, along with bioanalytical services including immune-analytical capabilities. The Company operates from multiple locations in Victoria and South Australia. vivoPharm's U.S.-based laboratory, located at the Hershey Center for Applied Research in Hershey, Pennsylvania, primarily focuses on screening and efficacy testing for a wide range of pharmaceutical and chemical products. The third location, in Munich, Germany, hosts project management and marketing personnel.

Strategy

The Company's market strategy is to focus on pharmaceutical and biotechnology companies and academic and governmental research facilities, developing innovative new drug discoveries. The Company's Discovery Services include preclinical anti-tumor efficacy, GLP compliant toxicity studies and small molecular and biologics analytical services, and the Company provides the tools and testing methods for companies and researchers seeking to identify and to develop new compounds and molecular-based biomarkers for diagnostics and therapeutics.

The Company offers preclinical services such as predictive tumor models, human orthotopic xenografts and syngeneic immuno-oncology relevant tumor models in its Hershey, PA facility and continues to work toward being a leader in the field of immuno-oncology preclinical services in the United States. This service is supplemented with GLP toxicology and extended bioanalytical services in its Australian-based facilities in Clayton, VIC and Gilles Plains, SA.

In 2019, until the Business Disposals, the Company utilized relatively the same proprietary and nonproprietary molecular diagnostic tests and technologies across all of its service offerings outside of Discovery Services to deliver results-oriented information important to cancer treatment and patient management. The Company's portfolio primarily included comparative genomic hybridization (CGH) microarrays, gene expression tests, next generation sequencing (NGS) panels, and DNA fluorescent *in situ* hybridization (FISH) probes. The Company provided its testing services from its Clinical Laboratory Improvement Amendments ("CLIA") - certified and College of American Pathologists ("CAP") - accredited laboratories in Rutherford, NJ and Raleigh, NC.

Market Overview

United States Clinical Oncology Market Overview

Despite many advances in the treatment of cancer, it remains one of the greatest areas of unmet medical need. In 2019, the World Health Organization attributed 9.6 million deaths globally to cancer, which is about 1 in 6 deaths. Within the United States, cancer is the second most common cause of death, exceeded only by heart disease, accounting for nearly one out of every four deaths. The Agency for Healthcare Research and Quality estimated that the direct medical treatment costs of cancer in the United States for 2015 were $80.2 billion. The incidence, deaths and economic loss caused by cancer are staggering. In the United States in 2020, it is expected that in total there will be approximately 1.8 million new cancer cases diagnosed, which is the equivalent of approximately 4,950 new cases each day, according to the North American Association of Central Cancer Registries (NAACCR) 2019 data.

United States and International Clinical Trials Market Overview

The global clinical trials market size is expected to reach USD $69.8 billion by 2027, exhibiting a 5.1% compound annual growth rate (CAGR) during the forecast period, according to a February 2020 report published by Grand View Research, Inc. The United States is currently a world leader in biopharmaceutical research and development and manufacturing. In Fiscal Year 2020, the National Cancer Institute received a budget of $6.44 billion, an increase of $297 million over FY 2019, to issue grants to support research, with a targeted investment in enhanced and early detection of disease through the analysis of circulating biomarkers using minimally invasive methods, as well as a focused investment in cancer prevention and treatment including research on new vaccines to prevent cancer-causing infections and investigational immuno-oncology drugs and drug combinations. The Pharmaceutical Research and Manufacturers of America (PhRMA) reports that the average cost to develop a drug, including trial

failures, can be as high as $2.6 billion and the approval process from development to market may be as long as 15 years. According to the National Cancer Institute, since the 1990s, cancer death rates in the United States have declined 23%, and approximately 83% of life expectancy increases in cancer patients are due to new treatments and oncology medications.

Outside of the United States, growth in the pharmaceuticals and clinical trials market is continuing, and trials are increasingly becoming more complex. Growth in the European pharma market is anticipated to be driven largely by the United Kingdom, Germany, Spain, France and Italy. The size of this market is expected to grow 25% between 2017 and 2022, accounting for nearly 70% of the European pharma market by 2022.

While oncology drugs have the potential to be among the most personalized therapeutics, very few successfully make it to market. The application of pharmacogenomics to oncology clinical trials enables researchers to better predict differences, initially driven by data derived in preclinical research. The Company believes a growing demand for faster development of personalized medicines and more effective clinical trials are growth drivers of this market, and its core expertise is preclinical efficacy, toxicity and bioanalytical services.

More specific to the Company's targeted markets around the world, according to Market Insight Reports (October 2019) the global oncology-based in-vivo CRO market was valued at over $799 million in 2018 and is projected to reach $1.47 billion by 2026, growing at a CAGR of 7.9% from 2019 to 2026. The major factors contributing to the growth of this market include the rising incidence of cancer cases worldwide, the rise in the geriatric population, the increasing number of specific therapies in the oncology pipeline and the presence of large numbers of pipeline drugs. The number of late-stage pipeline therapies rose from 711 in 2017 to 849 in 2018, representing an increase of 19%, and the use of oncology-based in-vivo CRO helps in deriving the novel therapies for the diagnosis, prevention, and treatment to patients. Oncology is one of the most studied indication areas, as per the statistics available from government agencies around the world. Other factors that are playing a key role in driving growth in the oncology-based in-vivo CRO business include greater federal funding for research studies and increasing research expertise in the industry.

The Company has a particularly strong set of experiences working in the preclinical area of checkpoint inhibitors and specifically immunotherapies. Drug development is continuing to attract biotech companies transforming scientific innovation into practice-changing cancer drugs, thereby driving demand for the Company's services. When considering druggable targets within the different immuno-oncology drug classes, T cell immunomodulators and cell therapies had the largest increase in new targets in the past 2 years, which suggests that more innovation is going into these drug classes than the other IO drug classes. Overall, active drugs in development has grown from 2,030 to 3,876, a 91% increase in just 2 years, resulting in more than 3,400 active clinical trials evaluating such agents, 66% of all active immuno-oncology drugs in development.

The Company's Strategy

With the Business Disposal transactions completed in 2018 and 2019, the Company is now focused on delivering its pre-clinical CRO services to a diverse group of oncology market participants, including:

- biotechnology companies;
- pharmaceutical companies;
- governmental agencies; and
- academic research centers

These participants require syngeneic and xenograft tumor models to support the development of novel biomarkers and increasing technological expertise to collect key data sets for their clinical trials, understand and manage therapeutic development and design customized therapy choices. The Company believes that its approach to rapidly translate research insights about the genetics and molecular mechanisms of cancer into the research community will lead to innovative products being developed, particularly in the area of immuno-oncology therapies. To achieve this, and in order of its focus and priority, the Company intends to:

- *Leverage its specialized, disease-focused genomic and molecular knowledge, insights and service portfolio to secure additional collaborations or partnerships with leading biotech and pharmaceutical companies and clinical research organizations through its vivoPharm business. This will deepen its relationships with its existing clients and expand its unique portfolio of Discovery Service offerings in the United States, Europe, Australia and the rest of the world.* Biotech and Pharmaceutical companies engaged in the identification of therapeutic targets and novel oncology and immuno-oncology treatments often require support in trial design, assay development, preclinical research and clinical research and trial management. vivoPharm’s suite of oncology-focused services, including proprietary tumor models, enables the Company to increase its market share in drug identification, drug rescue and drug repurposing studies. The Company believes vivoPharm’s capabilities provide it with opportunities to deepen its relationships with existing customers through additional discovery and downstream molecular work.

- *Leverage its growing preclinical business to leverage sales relationships with its former biopharma business in the U.S., Europe and Australia, to provide its integrated service offerings.* The Company believes that by combining the efforts of its business development teams inside of its existing and prospective Discovery clients, which entail many biopharma companies, the Company can leverage its capabilities from preclinical development of biomarker detection methods, responses to immuno-oncology directed novel treatments and early prediction of clinical outcomes, supported by its extended portfolio of orthotopic, xenografts and syngeneic tumor test systems, to help drive its access to support other translational oncology initiatives.

- C*ontinue its focus on translational oncology and drive innovation and cost efficiency in diagnostics by continuing to develop next generation sequencing offerings independently and through collaborations with academic and cancer research centers and other key opinion leaders and their organizations.* Translational oncology refers to the focus on bringing novel research insights that characterize cancer at the genomic level directly and rapidly into the clinical setting with the overall goal of improving value to patients and providers in the treatment and management of disease. The Company believes that continuing to develop its existing platforms and tumor models will enable growth and efficiencies within its business.

- *Engage key strategic partners in the U.S. and abroad to leverage its remaining intellectual property portfolio and unique capabilities to grow its revenue*The Company entered into a strategic partnership in China to license its Tissue of Origin® test in that region; the Company announced a supply agreement with Agilent Technologies to expand the distribution of its proprietary FHACT probe internationally, and the Company entered into a partnership with Cellaria in the U.S. to characterize Cellaria's pipeline of commercial and custom-developed biopharma products to create innovative models that provide detailed, and patient-specific, assessment of response to therapy.

- *Continue to aggressively manage its cost structure.* The Company is focused on aggressively managing its operating costs while continuing to seek additional revenue growth opportunities. The Company is implementing measures to streamline costs across its laboratory facilities, integrating administrative functions across its global operations, implementing a cloud-based laboratory management system across all of its sites, along with key financial enterprise resource planning and human resource systems that enable greater efficiency.

The Company's Service Offerings

Prior to the Business Disposals, the Company's business was based on demand for molecular- and biomarker-based characterization of cancers from three main sectors: (1) biotechnology and pharmaceutical companies, (2) cancer centers and hospitals, and (3) the research community. With the Company's continued focus on the preclinical market, its services are primarily sought by biotechnology and pharmaceutical companies engaged in designing and preparing to run clinical trials, for their value and efficacy in oncology and immuno-oncology treatments and therapeutics. The Company believes trial participants' likelihood of experiencing either favorable or adverse responses to the trial treatment can be determined first by its extended portfolio of orthotopic, xenografts and syngeneic tumor test systems, and in early development through biomarker identification and development, thereby increasing trial efficiency, participant safety and trial success rates. Biotechnology and pharmaceutical companies also seek the Company's services in preclinical trial design and drug development, in order to effectively and efficiently select those therapeutic candidates most likely to progress to clinical treatment options. The Company's services are also sought by researchers and research groups seeking to identify biomarkers and panels and develop methods for diagnostic technologies and tests for disease.

Discovery Services

Through its acquisition of vivoPharm in 2017, the Company offers proprietary preclinical test systems valued by the pharmaceutical industry, biotechnology companies and academic research centers. In particular, the Company's preclinical development of biomarker detection methods, response to immuno-oncology directed novel treatments and early prediction of clinical outcome is supported by its extended portfolio of orthotopic, xenografts and syngeneic tumor test systems. vivoPharm specializes in conducting studies tailored to guide drug development, starting from compound libraries and ending with a comprehensive set of in vitro and in vivo data and reports, as needed for Investigational New Drug filing. vivoPharm operates in AAALAC accredited and GLP-compliant audited facilities. The Company provides its preclinical services, with a focus on efficacy models, from its Hershey, PA facility for the U.S. and European markets, and supplemented with GLP toxicology and extended bioanalytical services in its Australia-based facility in Clayton, VIC and Gilles Plains, SA (effective in February 2020).

The Company's Discovery Services provide the tools and testing methods for companies and researchers seeking to identify new molecular- and biomarker-based indicators for disease and to determine the pharmacogenomics, toxicity and efficacy of potential therapeutic candidate compounds. Discovery Services offered include development of both xenograft and syngeneic animal models,

toxicology and genetic toxicology services, pharmacology testing, pathology services, and validation of biomarkers for diseases including cancers. The Company also provides consulting, guidance and preparation of samples and clinical trial design. The Company believes the ability to analyze variations in biomarkers, tumor cells and compounds, and to interpret results into meaningful predictors of disease or indicators of therapeutic success is essential to discovering new molecular markers for cancer, new therapeutics, and targets for therapies.

Retained Tests

The Company continues to own a portfolio of proprietary disease-focused tests, which are currently available for licensing to the biopharma industry and diagnostic companies. The Company currently has a U.S. based diagnostic laboratory company offering its FHACT test domestically and a Chinese laboratory company preparing to offer its Tissue of Origin test in China.

HPV-Associated Cancers

HPV-associated cancers, including cervical, anal, and head and neck cancers, are caused by infection with high-risk variants of human papillomavirus (HPV), and are responsible for approximately 4% of all cancer diagnoses worldwide. Cervical cancer is the third most common cancer among women. According to the National Institutes of Health, while there are more than 100 types of HPV, approximately 15 types are considered to be cancer-causing, with only 2 strains being responsible for 70% of cervical cancer cases worldwide. Cervical cancer may be detected by traditional methods, including Pap smears and liquid cytology, where cervical cells obtained by Pap smear are observed by a pathologist, or by HPV typing, which identifies the strain of HPV virus presently infecting the patient. Neither of these techniques is able to identify the likelihood of the HPV-infection's developing into cancerous or precancerous lesions. According to the National Cancer Institute, about 50 million Pap smear tests to detect HPV are performed in the United States each year. It is estimated that approximately 2 million patients have abnormal Pap smear test results and are referred for biopsy/colposcopy as a result of such tests. However, only approximately 12,000 of these patients will develop cervical cancer. It is believed that early detection of HPV-associated cancers and lesions most likely to progress to cancer could eliminate unnecessary biopsies/colposcopies and thereby reduce health care costs.

The Company's Proprietary Tests for HPV-Associated Cancers

Test	Targeted Cancers	Technology & Advantages
FHACT®	• HPV-Associated Cancers - Cervical Cancer - Anal Cancer - Head & Neck Cancers	• FHACT® is the Company's proprietary, 4-color FISH-based DNA probe designed to identify aberrations in four important chromosomal regions that have been implicated in cancers associated with infection by the human papilloma virus (HPV): cervical, anal and oropharyngeal. • FHACT® is designed to determine copy number changes of four particular genomic regions by fluorescent *in situ* hybridization (FISH). These regions of DNA give specific information about the progression from HPV infection to cervical cancer, in particular the stage and subtype of disease. • FHACT® is designed to enable earlier detection of abnormal cells and can identify the additional genomic biomarkers that allow for the prediction of cancer progression. • FHACT® is designed to leverage the same Pap smear sample taken from the patient during routine screening, thus reducing the burden on the patient while delivering greater information to the clinician. • The Company offers an application of FHACT® as an LDT for cervical cancer and are developing applications for additional cancer targets. • The Company has obtained CE marking for FHACT®, which allows the Company to market the test in the European Economic Area.

Solid Tissue Cancers

The term “solid tumors” encompasses abnormal masses of cells that do not include fluid areas (e.g. blood) or cysts. Solid tumors are composed of abnormal cell growths that originate in organs or soft tissue and are normally named after the types of cells that form them. Examples of solid tumors include breast cancer, lung cancer, ovarian cancer and melanoma. Solid tumors may be benign (not cancerous) or malignant (cancerous) and may spread from their primary tissue of origin to other locations in the body (metastasis). There are over 200 individual chemotherapeutic drugs available for combating solid tumor cancers. Selection of an appropriate course of treatment for a patient may depend on identification of the gene mutation or mutations present in their particular cancer and on determining the cancer’s tissue of origin. Metastatic tumors with an uncertain primary site can be a difficult clinical problem. In tens of thousands of oncology patients every year, no confident diagnosis is ever issued, making standard-of-care treatment impossible.

The Company's Proprietary Tests for Solid Tissue Cancers

Test	Targeted Cancers	Technology & Advantages
Tissue of Origin®	• Solid Tissue Cancers - Thyroid - Breast - Non-Small Cell Lung Cancer (NSCLC) - Gastric - Pancreas - Colorectal - Liver - Bladder - Kidney - Non-Hodgkin’s Lymphoma - Melanoma - Ovarian - Sarcoma - Testicular Germ Cell - Prostate	• Tissue of Origin® (TOO®) is FDA-cleared, Medicare-reimbursed, and provides extensive analytical and clinical validation for statistically significant improvement in accuracy over other methods. • TOO® is a gene expression test that is used to identify the origin in cancer cases that are metastatic and/or poorly differentiated and unable to be typed by traditional testing methods. • TOO® increases diagnostic accuracy and confidence in site-specific treatment decisions, and leads to a change in patient treatment based on results 65% of the time it is used. • TOO® assesses 2,000 genes, covering 15 of the most common tumor types and 90% of all solid tumors. • In the fourth quarter of 2015, the Company acquired the TOO® test through its acquisition of substantially all of the assets of Response Genetics, Inc.

Tissue of Origin® Test. The Company continues to own and maintain its FDA-cleared Tissue of Origin® test, or TOO®, a gene expression test that is indicated when there is clinical uncertainty about a poorly differentiated or undifferentiated, or a metastatic tumor where the primary tissue of cancer development is unknown. The Tissue of Origin® test the Company believes is currently the only FDA-cleared test of its kind on the market, and can determine the most likely tissue of origin of a patient tumor sample from the fifteen most common tumor types - including thyroid, breast, pancreas, colon, ovarian and prostate - which account for ninety percent of all incidences of solid tissue tumors, by measuring the expression levels of 2,000 individual genes. TOO® is supported by extensive analytical and clinical validation data from robust, multi-center clinical studies. The Company believes TOO® can reduce the need for repeated testing, examinations, imaging and biopsy procedures by providing clinicians with the primary tissue type with greater certainty than traditional diagnostic techniques. This in turn empowers physicians to select the correct type of treatment earlier in the course of the patient’s therapy.

Discontinued Services

Biopharma Services

Until the Business Disposals, the Company's Biopharma Services included laboratory and testing services performed for biotechnology and pharmaceutical companies engaged in clinical trials. The Company's focus was on providing these clients with oncology specific and non-oncology genetic testing services for phase I-IV trials along with critical support of ancillary services. These services included: biorepository, clinical trial logistics, clinical trial design, bioinformatics analysis, customized assay development. DNA and RNA extraction and purification, genotyping, gene expression and biomarker analyses. The Company

also sought to apply its expertise in laboratory developed tests ("LDTs") to assist in developing and commercializing drug-specific companion diagnostics. The Company established business relationships with key instrument manufacturers to support their platforms in the market, and to drive acceptance among biopharmaceutical sponsors developing innovative immuno-oncology therapies.

In addition to the tests and services the Company provided to biotech and pharmaceutical companies, the Company developed Next Generation Sequencing (NGS) panels focused on pharmacogenomics and oncology that will inform researchers of trial subjects' drug sensitivities.

The Company also utilized its laboratories to provide clinical trial services to biotech and pharmaceutical companies and clinical research organizations to improve the efficiency and economic viability of clinical trials. The Company's clinical trials services leveraged its knowledge of clinical oncology and molecular diagnostics and its laboratories' fully integrated capabilities.

From a laboratory infrastructure standpoint, the Company possessed capabilities in histology, immunohistochemistry (IHC), flow cytometry, cytogenetics and fluorescent *in-situ* hybridization (FISH), as well as sophisticated molecular analysis techniques, including next generation sequencing. This allowed for comprehensive esoteric testing within one lab enterprise, with a CAP-accredited biorepository serving as a central hub for specimen tracking. Using this approach, the Company was able to support demanding clinical trial protocols requiring multiple assays and techniques aimed at capturing data on multiple biomarkers. The Company's suite of available testing platforms allowed for highly customized clinical trial design which was supported by a dedicated group of development scientists and technical personnel.

The Company also provided genetic testing for drug metabolism to aid biotech and pharmaceutical companies identify subjects' likely responses to treatment, allowing these companies to conduct more efficient and safer clinical trials. The Company believes pharmacogenomics drug metabolism testing helps deliver the promise of personalized medicine by enabling researchers to tailor therapies in development to differences in patients' genomic profiles.

Clinical Services

Until the Business Disposals, the Company provided its oncology and immuno-oncology tests and services to oncologists and pathologists at hospitals, cancer centers, and physician offices. The Company's portfolio contains proprietary tests to target cancers that are difficult to prognose and predict treatment outcomes through currently available mainstream techniques. The Company utilized an expansive range of non-proprietary tests and technologies to provide a comprehensive profile for each patient it serves. Clinical testing was available through anatomic pathology, flow cytometry, karotype, FISH, liquid biopsy and molecular diagnostics (including next generation sequencing and gene expression panels).

Sales and Marketing

The Company's sales and marketing efforts consist of both direct and indirect efforts, with the majority of efforts focused on direct sales in the United States, Europe and Australia. The Company collaborates with preclinical development teams at pharmaceutical and biotech companies on studies involving tumor models and therapeutic candidate compound testing.

The Company's U.S. and European business development and sales professionals have scientific backgrounds in hematology, pathology, and laboratory services, with many years of experience in biopharmaceutical and clinical oncology sales, esoteric laboratory sales from leading biopharmaceutical, pharmaceutical or specialty reference laboratory companies. The Company currently has a team of 3 business development and sales professionals in the United States and Europe.

The Company also promotes its services through marketing channels commonly used by the biopharma and pharmaceutical industries, such as internet, medical meetings and broad-based publication of its scientific and economic data. In addition, the Company provides easy-to-access information to its customers over the internet through dedicated websites. The Company's customers value easily accessible information in order to quickly review patient or study information.

Competition

The largest competitors in the global preclinical CRO market are companies like Pharmaceutical Product Development, LLC (US), MD Biosciences (US)., IQVIA (US), PAREXEL International Corporation (US), Envigo (US), Charles River (US), ICON PLC (Dublin), PRA Health Sciences (US), Medpace (US), Laboratory Corporation of America Holdings (US), WuXi AppTec (China) and Eurofins Scientific (Luxembourg). The players operating in the global preclinical CRO market are focusing on product unveilings, along with intensifying their global presence by entering untouched markets.

Projects related to the molecular mechanisms driving cancer development have received increased government funding, both in the United States and internationally. The National Cancer Institutes' Cancer Moonshot is anticipated to increase both patient awareness and federal government funding for research and clinical trials. The Federal Government has committed $1.8 billion over a 7 year period to fund the 21st Century Cures Act. As more information regarding cancer genomics and biomarkers becomes available to the public, the Company anticipates that more products aimed at identifying targeted treatment options will be developed and that these products may compete with its products.

Third-Party Suppliers

The Company currently relies on third-party suppliers for its specialized research and scientific instrumentation and related supplies of reagents, tumor cell lines, and other inventory for it to successfully perform its CRO services for its customers. In addition, the Company relies on contracted manufacturers and collaborative partners to produce materials necessary for its FHACT® and FDA-cleared Tissue of Origin® tests. The Company plans to continue to rely on these manufacturers and collaborative partners to manufacture these materials. The Company does not believe a short-term disruption from any one of these suppliers would have a material effect on its business, nor has the Company experienced any disruptions due to COVID-19.

Patents and Proprietary Technology

The Company has proprietary tests that enable oncologists and pathologists at hospitals, cancer centers, and physician offices to properly diagnose and inform cancer treatment. The Company relies on a combination of patents, patent applications, trademarks, trade secrets, know-how, as well as various contractual arrangements, in order to protect the proprietary aspects of its technology. The Company may also license its technology to others. The Company believes that no single patent, technology, trademark, intellectual property asset or license is material to its business as a whole.

Until the Business Disposals, the Company's patent portfolio consisted of 20 issued U.S. patents, 5 pending U.S. applications, and more than 40 foreign patents. Most of this intellectual property was transferred to those parties the Company entered into to complete the Business Disposals. The Company's key remaining patents currently include:

- Hematological cancers. The Company has two U.S. patents (U.S. Patent Nos. 8,580,713 and 8,557,747), directed to MatBA®, a microarray for detecting (and distinguishing) particular types of mature B cell neoplasms present in typical non-Hodgkin’s lymphoma, Hodgkin’s lymphoma and chronic lymphocytic leukemia. These patents cover the Company's trademarked MatBA® microarray and are directed to both the microarray itself as well as associated methodologies designed to detect the particular type of mature B cell neoplasm present in a patient. The MatBA® microarray patents issued from the first of the Company's family of applications in the microarray space. The term of these patents runs through 2030.

- The Company has four U.S. patents (U.S. Patent Nos. 8,977,506, 8,321,137, 7,747,547 and 8,473,217) covering its Tissue of Origin® Test. These patents are directed at systems and methods for detecting biological features in solid tumors. The term of these patents run through 2030.

- HPV-Associated Cancers. The Company has three U.S. patents (U.S. Patent Nos. 9,157,129, 8,865,882 and 8,883,414) that cover methods for detecting HPV-associated cancers used in its FHACT® test. The term of these patents run through 2031.

- FISH Probes. The Company has two patents covering its FISH probes. These patents cover probes and methodologies designed to detect and analyze particular chromosomal translocations (genetic lesions) associated with a wide range of cancers using a technique known as FISH and serve as the backbone for several of its other pending patent applications, which are more specifically geared towards other probes (and methodologies). The term of these patents run through 2022.

Until the Business Disposals, the Company held twenty-six U.S. registered trademarks, including a federal registration for the term “CGI” as well as three U.S. trademark applications and one foreign trademark registration for certain of its proprietary tests and services. The Company transferred the ownership of these trademarks to the Buyer, subject to a royalty-free license to use such intellectual property for six months after following the closing, and subject to its right to request an additional six months, which request has been made. The Company also owns the trademark for the vivoPharm trade name, which is the primary revenue-generating business unit.

Operations and Production Facilities

As a preclinical oncology contract research organization (CRO), the Company's leased facilities are built to house immunocompromised animals and specialized models. They incorporate surgical suites, gowning rooms, and holding rooms. In order to ensure an environment of utmost sterility, while also minimizing the workload by negating dependency on cage-wash infrastructure, the Company relies on its landlords and licensors to manage the vivarium's at its animal facilities. This allows for more investment of time and energy into scientific endeavors.

Third-Party Payor Reimbursement

Until the Business Disposals, the Company was reimbursed for clinical services by third-party payors that provided coverage to the patient, such as an insurance company, managed care organization or a governmental payor program or from physicians or other authorized parties (such as hospitals or independent laboratories) that ordered testing services or otherwise refer the services to the Company or directly from the patient.

Governmental Regulations

The Company's Pennsylvania and Australia research laboratory facilities comply with Good Laboratory Practices ("GLP") to the extent required by the FDA, Environmental Protection Agency, USDA, Organization for Economic Co-operation and Development (OECD), as well as other international regulatory agencies. Furthermore, the Company's early-stage discovery work, which is not subject to GLP standards, is typically carried out under a quality management system or internally developed quality systems. The Company's facilities are regularly inspected by U.S. and other regulatory compliance monitoring authorities, its clients' quality assurance departments, and its own internal quality assessment program. The Company is also accredited by AAALAC International, a private, nonprofit organization that promotes the humane treatment of animals in science through voluntary accreditation and assessment programs. The Company volunteers to participate in the AAALAC's program to demonstrate its commitment to responsible animal care and use, in addition to its compliance with local, state and federal laws that regulate animal research.

FDA

The U.S. Food and Drug Administration ("FDA") regulates the sale or distribution, in interstate commerce, of medical devices under the Federal Food, Drug, and Cosmetic Act ("FDCA"), including in vitro diagnostic test kits, reagents and instruments used to perform diagnostic testing. Certain of such devices must undergo premarket review by FDA prior to commercialization unless the device is of a type exempted from such review by statute or pursuant to FDA's exercise of enforcement discretion. FDA, to date, has not exercised its authority to actively regulate the development and use of LDTs, such as the Company's, as medical devices and therefore the Company does not believe that its LDTs currently require premarket clearance or approval.

Post-market Regulation

The Company's Tissue of Origin® test obtained clearance under section 510(k) of the FDCA. After a device, such as its Tissue of Origin® test, is cleared or approved for marketing, numerous and pervasive regulatory requirements continue to apply once the test is marketed, including FDA's current good manufacturing practice requirements. Since the Company does not offer its FDA-approved product in the European Economic Area ("EEA") the Company is not currently subject to post-market regulation in the EEA or any member state. The FDA has broad regulatory compliance and enforcement powers. If the FDA determines that a company has failed to comply with applicable regulatory requirements, it can take a variety of compliance or enforcement actions, which may result in any of the following sanctions:

- warning letters, untitled letters, fines, injunctions, consent decrees and civil penalties;
- recalls, withdrawals, or administrative detention or seizure of products;
- operating restrictions or partial suspension or total shutdown of production;
- refusing or delaying requests for 510(k) marketing clearance or PMA approvals of new products or modified products;
- reconsideration of 510(k) clearances or PMA approvals that have already been granted;
- refusal to grant export approvals for products; and/or
- criminal prosecution.

In addition, FDA could publicly issue a safety notice related to the Company's test or request updates to its product labeling, including the addition of warnings, precautions, or contraindications.

Health Insurance Portability and Accountability Act, as amended by the Health Information Technology for Economic and Clinical Health Act ("HITECH Act")

Under the administrative simplification provisions of HIPAA, as amended by the HITECH Act, the United States Department of Health and Human Services has issued regulations which 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. For further discussion of HIPAA and the impact on the Company's business, see the section entitled *"Risk Factors-Risks Related to its Business-The Company is required to comply with laws governing the transmission, security and privacy of health information that require significant compliance costs, and any failure to comply with these laws could result in material criminal and civil penalties."*

European General Data Protection Regulation

The collection and use of personal health data in the European Union had previously been governed by the provisions of the Data Protection Directive, which has been replaced by the General Data Protection Regulation ("GRPR") which became effective on May 25, 2018 While the Data Protection Directive did not apply to organizations based outside the EU, the GDPR has expanded its reach to include any business, regardless of its location, that provides goods or services to residents in the EU. This expansion would incorporate the Company's clinical trial activities in EU members states. The GDPR imposes strict requirements on controllers and processors of personal data, including special protections for "sensitive information" which includes health and genetic information of data subjects residing in the EU. GDPR grants individuals the opportunity to object to the processing of their personal information, allows them to request deletion of personal information in certain circumstances, and provides the individual with an express right to seek legal remedies in the event the individual believes his or her rights have been violated. Further, the GDPR imposes strict rules on the transfer of personal data out of the European Union to the United States or other regions that have not been deemed to offer "adequate" privacy protections. Failure to comply with the requirements of the GDPR and the related national data protection laws of the European Union Member States, which may deviate slightly from the GDPR, may result in fines of up to 4% of global revenues, or € 20,000,000, whichever is greater. As a result of the implementation of the GDPR, the Company may be required to put in place additional mechanisms ensuring compliance with the new data protection rules.

The Company's research activities in the EU are currently limited to non-human preclinical studies, and as such, the Company does not collect, store, maintain, process, or transmit any Personal Data (as that term is defined under the GDPR) of trial subjects. However, since the Company currently has three employees located in the EU, its processing and transfer for employee Personal Data is subject to GDPR requirements. The Company has implemented a privacy and security program that is designed to adhere to the requirements of the GDPR in order to protect employee Personal Data, and in the event the Company progresses to research or clinical trials involving humans, to protect participant Personal Data. However, there is significant uncertainty related to the manner in which data protection authorities will seek to enforce compliance with GDPR. For example, it is not clear if the authorities will conduct random audits of companies doing business in the EU, or if the authorities will wait for complaints to be filed by individuals who claim their rights have been violated. Enforcement uncertainty and the costs associated with ensuring GDPR compliance be onerous and adversely affect the Company's business, financial condition, results of operations and prospects. As a result, the Company cannot predict the impact of the GDPR regulations on its current or future business, either in the US or the EU.

Federal, State and Foreign Fraud and Abuse Laws

The federal Anti-Kickback Statute prohibits, among other things, knowingly and willfully offering, paying, soliciting or receiving remuneration to induce or in return for purchasing, leasing, ordering or arranging for the purchase, lease or order of any health care item or service reimbursable under a governmental payor program. The definition of "remuneration" has been broadly interpreted to include anything of value, including gifts, discounts, credit arrangements, payments of cash, 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 Department of Health and Human Services has 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. For further discussion of the impact of federal and state health care fraud and abuse laws and regulations on the Company's business, see the section entitled *"Risk*

Factors-Risks Related to its Business-The Company is subject to federal and state health care fraud and abuse laws and regulations and could face substantial penalties if the Company is unable to fully comply with such laws."

In addition to the administrative simplification regulations discussed above, HIPAA also created two new federal crimes: 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. 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. 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 approximately $11 thousand to $22 thousand for each false claim violation that occurred after January 15, 2018. (Those whose false claims violations that occurred before January 15, 2018 could be liable for treble damages plus lower civil monetary penalties.)

Additionally, 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 offense. Violations of these anti-bribery laws, or allegations of such violations, could have a negative impact on the Company's business, results of operations and reputation. For instance, in the United Kingdom, under the new 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 of 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.

Corporate Practice of Medicine

Approximately thirty (30) states have enacted laws prohibiting business corporations, such as the Company, 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, which vary among the states that have enacted them, are designed to prevent interference in the medical decision-making process by anyone who is not a licensed physician. Violation of these laws may result in civil or criminal fines, as well as sanctions imposed against the Company and/or the professional through licensure proceedings.

Other Regulatory Requirements

The Company's laboratory is 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, the Company uses 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.

OSHA 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 and Geographical Information

The Company operates in one reportable business segment and derive revenue from multiple countries, with 80% and 67% of its continuing operations revenue coming from the United States in fiscal year 2019 and 2018, respectively.

Employees

As of December 31, 2019, the Company had a total of approximately 110 full-time employees, and on January 1, 2020 approximately 75 employees were transferred to IDXG pursuant to the terms of the TSA. The Company therefore retained approximately 35 full time employees, with 3 employees in business development, 27 employees in clinical services and 5 employees in general and administrative. None of its employees are represented by a labor union, and the Company considers its employee relations to be good.

Corporate and Available Information

The Company was incorporated in the State of Delaware on April 8, 1999. On July 16, 2014, the Company purchased substantially all of the assets of Gentris Corporation ("Gentris"), a laboratory specializing in pharmacogenomics profiling for therapeutic development, companion diagnostics and clinical trials. On October 9, 2015, the Company acquired substantially all the assets and assumed certain liabilities of Response Genetics, Inc.

On August 18, 2014 the Company acquired BioServe Biotechnologies (India) Pvt. Ltd. ("BioServe"). On April 26, 2018, the Company sold BioServe to Reprocell, Inc.

On August 15, 2017, the Company purchased all of the outstanding stock of vivoPharm, with its principal place of business in Victoria, Australia.

On July 5, 2019, the Company entered into an asset purchase agreement with siParadigm, LLC, pursuant to which the Company sold to siParadigm certain assets associated with the Company's clinical laboratory business and agreed to cease operating the Clinical Business. On July 15, 2019, the Company entered into commercial agreements with the Company's senior lenders to divest all of the assets relating to the BioPharma Business.

The Company's principal executive offices are located at 201 Route 17 North, 2nd Floor, Rutherford, New Jersey 07070. The Company's telephone number is (201) 528-9200 and the corporate website address is www.cancergenetics.com. The Company included the website address in this annual report on Form 10-K only as an inactive textual reference and does not intend it to be an active link to the Company website. The information on the website is not incorporated by reference in this annual report on Form 10-K.

This annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and all amendments to those reports, as well as other documents the Company files with the U.S. Securities and Exchange Commission ("SEC"), are available free of charge through the Investors section of the Company website as soon as reasonably practicable after such material is electronically filed with or furnished to the SEC. The public can obtain documents that the Company files with the SEC at *www.sec.gov*.

This report includes the following trademarks, service marks and trade names owned by the Company: MatBA®, FHACT®, Tissue of Origin®, TOO®. These trademarks, service marks and trade names are the property of Cancer Genetics, Inc. and its affiliates.

Item 1A. Risk Factors.

An investment in the Company's common stock involves a high degree of risk including the risk of a loss of your entire investment. You should carefully consider the risks and uncertainties described below and the other information contained in this report and the other Company reports filed with the Securities and Exchange Commission. The risks set forth below are not the only ones facing the Company. Additional risks and uncertainties may exist that could also adversely affect the Company's business, operations and financial condition. If any of the following risks actually materialize, the Company's business, financial condition and/or operations could suffer. In such event, the value of the Company's common stock could decline, and you could lose all or a substantial portion of the money that you pay for the Company's common stock.

Risks Relating to the Company's Financial Condition and Capital Requirements

The Company has a history of net losses; the Company expects to incur net losses in the future, and the Company may never achieve sustained profitability.

The Company has historically incurred substantial net losses. The Company incurred losses of $6.7 million and $20.4 million for fiscal years ended December 31, 2019 and 2018, respectively. From the Company's inception in April 1999 through December 31, 2019, the Company had an accumulated deficit of $164.4 million. The Company expects losses to continue, only to the extent that the business does not outpace the public company-related expenses, such as legal and audit fees and director's and officer's liability insurance, and the potential for ongoing losses associated with operating the Discovery Services business. These losses have had, and will continue to have, an adverse effect on working capital, total assets and stockholders' equity. Because of the numerous risks and uncertainties associated with the Company's revenue growth and costs associated with being a public company, the Company is unable to predict when the Company will become profitable, and the Company may never become profitable. Even if the Company does achieve profitability, the Company may not be able to sustain or increase profitability on a quarterly or annual basis. The Company's inability to achieve and then maintain profitability would negatively affect business, financial condition, results of operations and cash flows.

The Company's recurring losses from operations have raised substantial doubt regarding the Company's ability to continue as a going concern.

At December 31, 2019, the Company's history of losses required management to assess its ability to continue operating as a going concern, according to ASC 205-40, Going Concern. Even after the Business Disposals, the Company does not project that cash at December 31, 2019 will be sufficient to fund normal operations for the twelve months from the issuance of these financial statements in the Annual Report on Form 10-K. The Company's ability to continue as a going concern is dependent on reduced losses and improved future cash flows. Alternatively, the Company may be required to raise additional equity or debt capital, or consummate other strategic transactions. These factors raise substantial doubt about the Company's ability to continue as a going concern. The Company can provide no assurance that these actions will be successful or that additional sources of financing will be available on favorable terms, if at all.

The consolidated financial statements do not include any adjustments that might be necessary should the Company be unable to continue as a going concern.

The Company's ability to satisfy claims of all its creditors in full is uncertain.

While in connection with the closing of the BioPharma Disposal, the SVB ABL and the PFG Term Note were terminated, and all related liens were released, the Company remains liable to various unsecured creditors, including in the amount of $100 thousand due to NovellusDx, Ltd. ("NDX") as of the date of this Form 10-K, in connection with its October 2019 NDX Settlement Agreement, and the principal amount of $1.3 million, plus interest due to Atlas Sciences, LLC pursuant to its one-year October 2019 unsecured note. At December 31, 2019, other than those of discontinuing operations, the Company had an aggregate of $5.7 million of current liabilities and $6.3 million in total liabilities. This is compared to current assets other than those of discontinuing operations of $7.1 million, as of December 31, 2019. However, at December 31, 2019, the Company has an additional $1.2 million of liabilities associated with discontinuing operations that will be funded primarily from the Company's continuing operations. No assurances can be given that the Company will be able to pay such unsecured creditors in full or that claims will not be asserted in addition to the amounts which the Company believes it is liable for at this time.

The Company's additional sources of funds are uncertain.

The Company has three sources of potential cash receipts following the Business Disposals, with only the third, the proceeds from the Discovery Business, being material. First, as part of the sale of the Clinical Business to siParadigm, the Company is receiving earn-out payments based on the revenues of siParadigm from the former customers of the Company's Clinical Services business. Such earn-out payments are based on revenues generated in the 12 months following the closing of the sale of the Clinical Services business, and are to be paid over 24 months following such sale. While the Company received net payments of approximately $156 thousand from siParadigm in the July through December 2019 period, the monthly payments from siParadigm have decreased since the end of the third quarter of 2019, and no assurances can be given with respect to the amount and timing of any further payments. Second, the Company is attempting to collect on certain accounts receivable it owns that were not sold to siParadigm or IDXG. The net amount of such accounts receivable expected to be collected as of December 31, 2019 was approximately $71 thousand.

Third, the Company continues to own its Discovery Business through its vivoPharm subsidiary. For the twelve month period ended December 31, 2019, the Company had a net loss from continuing operations of $6.9 million, had cash used in continuing operations of $3.2 million and $7.3 million in revenues from the Discovery Business. No assurances can be given as to whether the Company will ever be profitable, and there are substantial doubts about the Company's ability to continue as a going concern.

The Company identified a material weakness in its internal control over financial reporting. If the Company is not able to remediate the material weakness and otherwise maintain an effective system of internal control over financial reporting, the reliability of its financial reporting, investor confidence in the Company and the value of its common stock could be adversely affected.

As a public company, the Company is required to maintain internal control over financial reporting and to report any material weaknesses in such internal controls. Section 404 of the Sarbanes-Oxley Act ("Section 404"), requires that the Company evaluate and determine the effectiveness of internal controls over financial reporting and provide a management report on internal control over financial reporting. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of annual or interim financial statements will not be prevented or detected and corrected on a timely basis.

During the fourth quarter of 2019, the Company identified a material weakness in internal control over financial reporting related to controls over accounting for foreign currency exchange rate. As a result, a non-cash adjustment had to be recorded to correct the error identified during the 2019 audit procedures. In addition, the Company identified a material weakness in internal control over financial reporting related to controls over accounting for the fair value of an investment held by the Company. As a result, a non-cash adjustment had to be recorded to correct the error identified during the 2019 audit procedures. The Company has begun the process of implementing changes to its internal control over financial reporting to remediate the control deficiencies that gave rise to the material weakness, including further improvements in its processes and analyses that support the accounting for foreign currency exchanges. The Company expects this deficiency to be corrected by the end of the second quarter of 2020.

During the fourth quarter of 2017, the Company identified a continued material weakness in internal control over financial reporting related to controls over accounting for uncollectible Clinical Services revenue. This material weakness in the Company's revenue and cash receipts process continued in 2018 as remediation efforts were not adequate. As a result, additional amounts had to be recorded as bad debt expense for older balances. Based on a change in financial leadership in late November 2018, the Company has demonstrated a commitment to remediate the material weakness in a timely fashion. The Company had noted the need for additional corporate accounting and financial personnel, supplemented by external resources as appropriate, with the requisite skill and technical expertise. This deficiency was ultimately corrected by the disposal of the Clinical Business in July 2019.

If the Company's steps are insufficient to successfully remediate the material weaknesses and otherwise establish and maintain an effective system of internal control over financial reporting, the reliability of its financial reporting, investor confidence in the Company and the value of its common stock could be materially and adversely affected. Effective internal control over financial reporting is necessary for the Company to provide reliable and timely financial reports and, together with adequate disclosure controls and procedures, are designed to reasonably detect and prevent fraud. Any failure to implement required new or improved controls, or difficulties encountered in their implementation could cause the Company to fail to meet its reporting obligations. For as long as the Company is a "smaller reporting company" under the U.S. securities laws, the Company's independent registered public accounting firm will not be required to attest to the effectiveness of its internal control over financial reporting pursuant to Section 404. An independent assessment of the effectiveness of internal control over financial reporting could detect problems that management's assessment might not. Undetected material weaknesses in its internal control over financial reporting could lead to financial statement restatements and require the Company to incur the expense of remediation.

Moreover, the Company does not expect that disclosure controls or internal control over financial reporting will prevent all error and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Further, the design of a control system must reflect the fact that there are resource constraints and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected. Failure of its control systems to prevent error or fraud could materially adversely impact the Company.

The Company's business operations are more limited than prior to the sale of its Clinical Services business and the sale of its BioPharma Services business, and thus the costs of maintaining itself as a publicly traded corporation are proportionally higher as a percentage of total revenue and will be more burdensome to the Company going forward.

As a public company, the Company has incurred and will continue to incur significant legal, accounting and other expenses. The Company is subject to the reporting requirements of the Securities Exchange Act of 1934, as amended, the other rules and regulations of the Securities and Exchange Commission, or SEC, and the rules and regulations of The Nasdaq Stock Market, or Nasdaq. Compliance with the various reporting and other requirements applicable to public companies requires considerable time and attention of management. For example, the Sarbanes-Oxley Act and the rules of the SEC and national securities exchanges have imposed various requirements on public companies, including requiring establishment and maintenance of effective disclosure and financial controls. Management and other personnel are devoting and will continue to need to devote a substantial amount of time and money to these compliance obligations. The board may view these costs to be disproportionately expensive when viewed in light of the Company's reduced revenues and overall operations following the Business Disposals.

As a result, the board of directors may elect to pursue a strategic transaction to attempt to expand the business and create additional value for shareholders, or in light of the time, costs and uncertainties inherent in seeking such a strategic transaction, and the costs in remaining as a public company, the Company's board may decide to pursue a dissolution and liquidation of the Company. If the Company's board of directors were to approve and recommend, and the Company's stockholders were to approve, a dissolution and liquidation of the Company, the Company would be required under Delaware corporate law to pay the Company's outstanding obligations, as well as to make reasonable provision for contingent and unknown obligations, prior to making any distributions in liquidation to the Company's stockholders. The Company's commitments and contingent liabilities may include severance obligations related to the recent asset sales. As a result of this requirement, a portion of the Company's assets may need to be reserved pending the resolution of such obligations. If a dissolution and liquidation were pursued, the board of directors, in consultation with its advisors, would need to evaluate these matters and make a determination about a reasonable amount to reserve. Accordingly, holders of the Company's common stock could lose all or a significant portion of their investment in the event of a liquidation, dissolution or winding up of the company.

Management may have conflicts of interest.

Current management of the Company, principally its Chief Executive Officer and Chief Financial Officer, are responsible for the day-to-day operations of the Company, including planning for the future direction of the Company after the Business Disposals. Such officers may enter into consulting agreements with Buyer (and, in the case of the Chief Executive Officer, siParadigm) and have been assisting in the transition of the Clinical Business and BioPharma Business to siParadigm and IDXG, as applicable. It is possible that the dual roles will create conflicts of interest for such officers with respect to allocation of their time and otherwise. No assurance can be given that the officers of the Company will have sufficient time and resources to properly direct the future operations of the Company, or that other conflicts of interest in their dual roles will not arise.

Risks Relating to the Company's Business and Strategy

If the Company is unable to increase sales, the Company revenues will be insufficient to achieve profitability.

The Company currently derives substantially all revenues from testing services, laboratory services and CRO at the premarket stage. Discovery Services are services that include proprietary preclinical test systems supporting clinical diagnostic and prognostic offerings at early stages, supporting the pharmaceutical industry, biotechnology companies and academic research centers. In particular, the Company's preclinical development of biomarker detection methods, response to immuno-oncology directed novel treatments and early prediction of clinical outcome is supported by the Company's extended portfolio of orthotopic, xenografts and syngeneic tumor test systems. It is unclear whether the Company will be able to maintain and grow the number of pharmaceutical and biotech companies and clinical research organizations who will avail themselves of the Company's services.

If the Company is unable to increase sales of tests and services, the Company will not produce sufficient revenues to become profitable.

The Company's business is subject to risks arising from epidemic diseases, such as the recent global outbreak of the COVID-19 coronavirus.

The recent outbreak of the novel coronavirus, COVID-19, which has been declared by the World Health Organization to be a pandemic, has spread across the globe and is impacting worldwide economic activity. A pandemic, including COVID-19 or other public health epidemic, poses the risk that the Company or its employees, contractors, suppliers, courier delivery services and other partners may be prevented from conducting business activities for an indefinite period of time, including due to spread of the disease within these groups or due to shutdowns that may be requested or mandated by governmental authorities. While it is not possible at this time to estimate the impact that COVID-19 could have on the Company's business, the COVID-19 pandemic and mitigation measures have had and may continue to have an adverse impact on global economic conditions which could have an adverse effect on the Company's business and financial condition, including impairing the ability to raise capital when needed.

The continued spread of COVID-19 and the measures taken by the governments of countries affected could disrupt the supply chain of material needed for the Company's Discovery Services and could delay future projects from commencing due to COVID-19 related impacts on the demand for Company services and therefore have a material adverse effect on business, financial condition and results of operations.

In addition, the Company's corporate and accounting functions are located in New Jersey and are currently subject to a shelter-in-place mandate. The Company's U.S. based preclinical laboratory is located in Pennsylvania and is subject to a stay-at-home order, and many customers worldwide are similarly impacted. As a healthcare provider, the Company is allowed to remain open in compliance with the shelter-in-place and stay-at-home mandates and continue to provide critical services in the development of new therapies and the fight against cancer. The Company is still providing Discovery Services, and has yet to experience a slowdown in project work as a result of the COVID-19 pandemic; however, the future of many projects may be delayed. The global outbreak of COVID-19 continues to rapidly evolve, and the extent to which COVID-19 may impact business, results of operations and financial position will depend on future developments, which are highly uncertain and cannot be predicted with confidence, such as the ultimate geographic spread of the disease, the duration of the outbreak, travel restrictions and social distancing in the United States and other countries, business closures or business disruptions, and the effectiveness of actions taken in the United States and other countries to contain and treat the disease.

If pharmaceutical and biotech companies and clinical research organizations decide not to use the Company's preclinical CRO services in connection with their clinical trials, the Company may be unable to generate sufficient revenue to sustain the Company's business.

To generate demand for the its Discovery Services, the Company needs to educate pharmaceutical and biotech companies and clinical research organizations on the utility of the Company's tests and services to improve the outcomes of clinical trials for new oncology drugs and more rapidly advance targeted therapies through the clinical development process through published papers, presentations at scientific conferences and one-on-one education sessions by members of the Company's sales force. The Company may need to hire additional commercial, scientific, technical and other personnel to support this process. If the Company cannot convince pharmaceutical and biotech companies or clinical research organizations to order its diagnostic tests or other future tests the Company develops, the Company will likely be unable to create demand for tests in sufficient volume for it to achieve sustained profitability.

The potential loss or delay of the Company's large contracts or of multiple contracts could adversely affect results.

Most of the Company's Discovery Services customers can terminate the contracts upon 30 to 90 days' notice. These customers may delay, terminate or reduce the scope of the contracts for a variety of reasons beyond the Company's control, including but not limited to:

- decisions to forego or terminate a particular clinical trial;
- lack of available financing, budgetary limits or changing priorities;
- failure of products being tested to satisfy safety requirements or efficacy criteria;
- unexpected or undesired clinical results for products; or
- shift of business to a competitor or internal resources.

As a result, contract terminations, delays and alterations are a possible outcome in the Company's Discovery Services business. In the event of termination, the contracts often provide for fees for winding down the project, but these fees may not be sufficient for the Company to maintain margins, and termination may result in lower resource utilization rates. In addition, the Company may not realize the full benefits of the backlog of contractually committed services if customers cancel, delay or reduce their commitments under the Company's contracts with them, which may occur if, among other things, a customer decides to shift its

business to a competitor or revoke the Company's status as a preferred provider. Thus, the loss or delay of a large contract or the loss or delay of multiple contracts could adversely affect Company revenues and profitability. The Company believes the risk of loss or delay of multiple contracts potentially has greater effect where the Company is party to broader partnering arrangements with global biopharmaceutical companies.

The Company's quarterly operating results may be subject to significant fluctuations and may be difficult to forecast.

The timing, size and duration of the Company's contracts with pharmaceutical and biotech companies and clinical research organizations depend on the size, pace and duration of such customer's clinical trial, over which the Company has no control and sometimes limited visibility. In addition, expense levels are based, in part, on expectation of future revenue levels. A shortfall in expected revenue could, therefore, result in a disproportionate decrease in the Company's net income. As a result, quarterly operating results may be subject to significant fluctuations and may be difficult to forecast.

If the market for the Company's services does not experience significant growth or if services do not achieve broad acceptance, operations will suffer.

The Company cannot accurately predict the future growth rate or the size of the market for the Company's services. The expansion of this market depends on a number of factors, such as:

- the cost, performance and reliability of the Company's services, and the services offered by competitors;
- customers' perceptions regarding the benefits of the Company's services;
- customers' satisfaction with the Company's services; and
- marketing efforts and publicity regarding the Company's services.

The Company's financial results may be adversely affected if it underprices contracts, overruns cost estimates or fails to receive approval for or experience delays in documenting change orders.

Most of the Discovery Services contracts are either fee for service contracts or fixed-fee contracts. The Company's past financial results have been, and future financial results may be, adversely impacted if the Company initially underprices contracts or otherwise overrun cost estimates and is unable to successfully negotiate a change order. Change orders can occur when the scope of work the Company performs needs to be modified from that originally contemplated by the contract with the customer and are typically treated as new projects. Modifications can occur, for example, when there is a change in a key clinical trial assumption or parameter or a significant change in timing. Where the Company is not successful in converting out-of-scope work into change orders under current contracts, the Company bears the cost of the additional work. Such underpricing, significant cost overruns or delay in documentation of change orders could have a material adverse effect on business, results of operations, financial condition or cash flows.

If the Company fails to perform the services in accordance with contractual requirements, regulatory standards and ethical considerations, the Company could be subject to significant costs or liability and the Company's reputation could be harmed.

In connection with the Discovery Services business, the Company contracts with biopharmaceutical companies to provide specialized services to assist them in planning and conducting unique, specialized studies to guide drug discovery and development programs with a concentration in oncology and immuno-oncology. The Company's services include monitoring clinical trials, data and laboratory analysis, electronic data capture and other related services. Such services are complex and subject to contractual requirements, regulatory standards and ethical considerations. If the Company fails to perform the services in accordance with these requirements, regulatory agencies may take action against the Company for failure to comply with applicable regulations governing clinical trials. Customers may also bring claims against the Company for breach of contractual obligations. Any such action could have a material adverse effect on results of operations, financial condition and reputation.

Such consequences could arise if, among other things, the following occur:

Improper performance of the Company's services. The performance of clinical development services is complex and time-consuming. For example, the Company may make mistakes in conducting a clinical trial that could negatively impact or obviate the usefulness of the clinical trial or cause the results of the clinical trial to be reported improperly. If the clinical trial results are compromised, the Company could be subject to significant costs or liability, which could have an adverse impact on the ability to perform services. As examples:

- non-compliance generally could result in the termination of ongoing clinical trials or sales and marketing projects or the disqualification of data for submission to regulatory authorities;

- compromise of data from a particular clinical trial, such as failure to verify that informed consent was obtained from patients, could require the Company to repeat the clinical trial under the terms of the contract at no further cost to the customer, but at a substantial cost to the Company; and

- breach of a contractual term could result in liability for damages or termination of the contract.

While the Company endeavors to contractually limit exposure to such risks, improper performance of the Company's services could have an adverse effect on the Company's financial condition, damage reputation and result in the cancellation of current contracts by or failure to obtain future contracts from the affected customer or other customers.

Investigation of customers. From time to time, one or more of the Company's customers are audited or investigated by regulatory authorities or enforcement agencies with respect to regulatory compliance of their clinical trials, programs or the marketing and sale of their drugs. There is a risk that either the Company's customers or regulatory authorities could claim that the Company performed services improperly or that the Company is responsible for clinical trial or program compliance. If the Company's customers or regulatory authorities make such claims against the Company and prove them, the Company could be subject to damages, fines or penalties. In addition, negative publicity regarding regulatory compliance of customers' clinical trials, programs or drugs could have an adverse effect on the Company's business and reputation.

Business or economic disruptions or global health concerns could seriously harm the Company's development efforts and increase costs and expenses.

Broad-based business or economic disruptions could adversely affect the Company's business and ongoing or planned research and development activities of customers. For example, in December 2019 an outbreak of a novel strain of coronavirus originated in Wuhan, China and has since spread to a number of other countries, including the United States. To date, this outbreak has already resulted in extended shutdowns of certain businesses in the Wuhan region and has had ripple effects to businesses around the world. Global health concerns, such as coronavirus, could also result in social, economic, and labor instability in the countries in which the Company or Company customers operate. The Company cannot presently predict the scope and severity of any potential business shutdowns or disruptions, but if the Company or any of its customers, suppliers, regulators and other third parties with whom the Company conducts business, were to experience shutdowns or other business disruptions, the ability to conduct business in the manner and on the timelines presently planned could be materially and negatively impacted. It is also possible that global health concerns such as this one could disproportionately impact the healthcare-related facilities in which Company customers conduct studies, which could have a material adverse effect on the Company's business and results of operation and financial condition.

If the Company is unable to manage growth in business, prospects may be limited and the Company's future results of operations may be adversely affected.

The Company intends to continue with sales and marketing programs and other activities as needed to meet future demand. Any significant expansion may strain managerial, financial and other resources. If the Company is unable to manage such growth, business, operating results and financial condition could be adversely affected. The Company will need to improve continually the operations, financial and other internal systems to manage growth effectively, and any failure to do so may lead to inefficiencies and redundancies, and result in reduced growth prospects and diminished operational results.

The Company may acquire other businesses or make investments in other companies or technologies that could harm operating results, dilute its stockholders' ownership, increase debt or cause the Company to incur significant expense.

As part of the Company's business strategy, the Company may pursue other mergers or acquisitions of businesses and assets. For example, the Company acquired vivoPharm in 2017, Response Genetics, Inc. in 2015 and Gentris Corporation in 2014, and entered into a joint venture in May 2013 with Mayo Foundation for Education and Research. The Company subsequently shut down Response Genetics operations in California and moved them to New Jersey and North Carolina and in February 2020 completed the commitments thereby ending the need for the Company's joint venture with Mayo. The Company also purchased a business in India in August 2014 which was sold in April 2018. The Company also sold the Clinical Business and BioPharma Business in two transactions in July 2019 (the "Business Disposals"). The Company has developed experience with acquiring other companies and forming strategic alliances and joint ventures. The Company may not be able to find suitable partners or merger or acquisition candidates, and may not be able to complete such transactions on favorable terms, if at all. If the Company makes any acquisitions,

the Company may not be able to integrate these acquisitions successfully into existing business, and could assume unknown or contingent liabilities. Any future acquisitions also could result in significant write-offs or the incurrence of debt and contingent liabilities, any of which could have a material adverse effect on the Company's financial condition, results of operations and cash flows. Integration of an acquired company also may disrupt ongoing operations and require management resources that would otherwise focus on developing existing business. The Company may experience losses related to investments in other companies, which could have a material negative effect on the results of operations. The Company may not identify or complete these transactions in a timely manner, on a cost-effective basis, or at all, and may not realize the anticipated benefits of any acquisition, technology license, strategic alliance or joint venture.

To finance any mergers or acquisitions, the Company may choose to issue shares of common stock as consideration, which would dilute the ownership of its stockholders. If the price of the Company's common stock is low or volatile, the Company may not be able to acquire other companies using stock as consideration. Alternatively, it may be necessary for the Company to raise additional funds for acquisitions through public or private financings. Additional funds may not be available on terms that are favorable to the Company, or at all.

There is a scarcity of experienced professionals in the Company's industry. If the Company is not able to retain and recruit personnel with the requisite technical skills, the Company may be unable to successfully execute the business strategy.

The specialized nature of the Company's industry results in an inherent scarcity of experienced personnel in the field. The Company's future success depends upon the ability to attract and retain highly skilled personnel (including medical, scientific, technical, commercial, business, regulatory and administrative personnel) necessary to support anticipated growth, develop business and perform certain contractual obligations. Given the scarcity of professionals with the scientific knowledge that the Company requires and the competition for qualified personnel among life science businesses, the Company may not succeed in attracting or retaining the personnel required to continue and grow operations. The loss of a key employee, the failure of a key employee to perform in his or her current position or the Company's inability to attract and retain skilled employees could result in the inability to continue to grow the Company's business or to implement business strategy.

The loss or transition of any member of the Company's senior management team or the inability to attract and retain highly skilled scientists, clinicians, and salespeople could adversely affect Company business.

The Company's success depends on the skills, experience, and performance of key members of the senior management team. The individual and collective efforts of these employees will be important as the Company continues to develop tests and services, and as the Company expands commercial activities. The loss or incapacity of existing members of the senior management team could adversely affect operations if the Company experiences difficulties in hiring qualified successors.

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 the Company's business. Leadership transitions can be inherently difficult to manage and may cause uncertainty or a disruption to 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 the Company's commercial organization, which may impact the ability to achieve sales and revenue targets.

The Company's inability to attract, hire and retain a sufficient number of qualified sales professionals would hamper the ability to increase demand for the Company's services and to expand geographically.

The Company's success in selling Discovery Services could require the Company to expand the sales force in the United States and internationally by recruiting additional sales representatives with extensive experience in the Company's field. To achieve the Company's marketing and sales goals, the Company will need to continue to expand sales and commercial infrastructure. Sales professionals with the necessary technical and business qualifications are in high demand, and there is a risk that the Company may be unable to attract, hire and retain the number of sales professionals with the right qualifications, scientific backgrounds and relationships with decision-makers at potential customers needed to achieve sales goals. The Company may face competition from other companies in the industry, some of whom are much larger than the Company and who can pay greater compensation and benefits than the Company can, in seeking to attract and retain qualified sales and marketing employees. If the Company is unable to hire and retain qualified sales and marketing personnel, business will suffer.

If the Company's laboratory facilities become damaged or inoperable, or the Company is required to vacate any facility, the ability to provide services may be jeopardized.

The Company currently derives substantially all revenues from preclinical services. The Company's facilities and equipment could be harmed or rendered inoperable by natural or man-made disasters, including fire, flooding and power outages, which may render

it difficult or impossible for the Company to perform tests or provide laboratory services for some period of time. The inability to perform services or the backlog of projects that could develop if any of the Company's facilities is inoperable for even a short period of time may result in the loss of customers or harm to the Company's reputation or relationships with key researchers, collaborators, and customers, and the Company may be unable to regain those customers or repair the Company's reputation in the future. Furthermore, the Company's facilities and the equipment used to perform research and development work could be costly and time-consuming to repair or replace.

If the Company cannot compete successfully with competitors, the Company may be unable to increase or sustain revenues or achieve and sustain profitability.

The Company faces competition from companies that offer or are developing animal models for tumors and that have capabilities in toxicology and pharmacology testing. The competitors in the Company's Discovery Services business include Covance, Champions Oncology, Crown BioScience (recently acquired by JSR Life Sciences), Eurofins Scientific, Charles River, Jackson Labs and Explora Biolabs.

The Company's competitors may succeed in selling their products to pharmaceutical and biotech customers more effectively than the Company sells products. In addition, academic institutions, hospitals, governmental agencies, and other public and private research organizations also may conduct similar research, seek patent protection, and may develop and commercially introduce competing products or technologies on their own or through joint ventures. If one or more of the Company's competitors succeeds in developing similar technologies and products that are more effective or successful than any of those that the Company currently sells or will develop, results of operations will be significantly adversely affected.

A small number of customers account for most of the sales of the Company's services. If any of these customers require fewer services from the Company for any reason, revenues could decline.

Due to the early stage nature of the Company's business and the limited sales and marketing activities to date, the Company has historically derived a significant portion of revenue from a limited number of customers, although the customers that generate a significant portion of Company revenue may change from period to period. The Company's customers are largely pharmaceutical and biotech companies as part of a clinical trial. During the year ended December 31, 2019, three customers accounted for approximately 61% of the Company's consolidated revenue from continuing operations. During the year ended December 31, 2018,three customers accounted for approximately 53% of the Company's consolidated revenue from continuing operations. As a healthcare provider, the Company is still providing Discovery Services and has yet to experience a slowdown in its project work; however, the future of many projects may be delayed. The Company continues to vigilantly monitor the situation with its primary focus on the health and safety of its employees and clients.

If the Company uses biological and hazardous materials in a manner that causes injury, the Company could be liable for damages.

The Company's activities currently require the controlled use of potentially harmful biological materials and hazardous materials and chemicals. The Company 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, the Company could be held liable for any resulting damages, and any liability could exceed the Company's resources or any applicable insurance coverage the Company may have. Additionally, the Company is subject to, on an ongoing basis, federal, state and local laws and regulations governing the use, storage, handling and disposal of these materials and specified waste products. The cost of compliance with these laws and regulations may become significant and could have a material adverse effect on the financial condition, results of operations and cash flows. In the event of an accident or if the Company otherwise fails to comply with applicable regulations, the Company could lose permits or approvals or be held liable for damages or penalized with fines.

The Company's Discovery Services customers face intense competition from lower cost generic products, which may lower the amount that they spend on the Company's services.

The Company's Discovery Services customers face increasing competition from lower cost generic products, which in turn may affect their ability to pursue research and development activities with the Company. In the United States, EU and Japan, political pressure to reduce spending on prescription drugs has led to legislation and other measures which encourages the use of generic products. In addition, proposals emerge from time to time in the United States and other countries for legislation to further encourage the early and rapid approval of generic drugs. Loss of patent protection for a product typically is followed promptly by generic substitutes, reducing customers' sales of that product and their overall profitability. Availability of generic substitutes for the Company's customers' drugs may adversely affect their results of operations and cash flow, which in turn may mean that they would not have surplus capital to invest in research and development and drug commercialization, including in the Company's

services. If competition from generic products impacts customers' finances such that they decide to curtail the Company's services, revenues may decline and this could have a material adverse effect on the Company's business.

The Company depends on information technology and telecommunications systems, and any failure of these systems could harm the Company's business.

The Company depends on information technology and telecommunications systems for significant aspects of operations. These information technology and telecommunications systems support a variety of functions, including test processing, sample tracking, quality control, customer service and support, billing, and general and administrative activities. 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 the Company's servers are potentially vulnerable to physical or electronic break-ins, computer viruses and similar disruptive problems. Any disruption or loss of information technology or telecommunications systems on which critical aspects of the Company's operations depend could have an adverse effect on business.

The Company's results of operations may be adversely affected if the Company fails to realize the full value of goodwill and intangible assets.

The Company assesses the realizable condition of indefinite-lived intangible assets and goodwill annually and conducts an interim evaluation whenever events or changes in circumstances, such as operating losses or a significant decline in earnings associated with the acquired business or asset, indicate that these assets may be impaired. The Company's ability to realize the value of the goodwill and indefinite-lived intangible assets will depend on the future cash flows of the businesses the Company has acquired, which in turn depend in part on how well the Company has integrated these businesses into the Company's own business. If the Company is not able to realize the value of the goodwill and indefinite-lived intangible assets, the Company may be required to incur material charges relating to the impairment of those assets. During the year ended December 31, 2019, the Company recognized goodwill impairment of $2.9 million after considering the effects of the Business Disposals and declines in stock price. Such impairment charges could materially and adversely affect the Company's operating results and financial condition.

The Company's operations are subject to environmental, health and safety laws and regulations, with which compliance may be costly

The Company's business is subject to federal, state, and local laws and regulations relating to the protection of the environment, worker health and safety and the use, management, storage, and disposal of hazardous substances and wastes. Failure to comply with these laws and regulations may result in substantial fines, penalties or other sanctions. In addition, environmental laws and regulations could require the Company to pay for environmental remediation and response costs, or subject the Company to third party claims for personal injury, natural resource or property damage, relating to environmental contamination. Liability may be imposed whether or not the Company knew of, or were responsible for, such environmental contamination. The cost of defending against environmental claims, of compliance with environmental, health and safety regulatory requirements or of remediating contamination could materially adversely affect the Company's business, assets or results of operations.

Intellectual Property Risks Relating to the Company's Business

The Company's rights to use technologies licensed from third parties are not within the Company's control, and the Company may not be able to sell products if the Company loses existing rights or cannot obtain new rights on reasonable terms.

The Company's ability to market certain of services, domestically and/or internationally, is in part derived from licenses to intellectual property which is owned by third parties. As such, the Company may not be able to continue selling services if the Company loses existing licensed rights or sell new services if the Company cannot obtain such licensed rights on reasonable terms. As may be expected, the Company's business may suffer if (i) these licenses terminate; (ii) if the licensors fail to abide by the terms of the license, properly maintain the licensed intellectual property or fail to prevent infringement of such intellectual property by third parties; (iii) if the licensed patents or other intellectual property rights are found to be invalid or (iv) if the Company is unable to enter into necessary licenses on reasonable terms or at all. In return for the use of a third-party's technology, the Company may agree to pay the licensor royalties based on sales of products as well as other fees. Such royalties and fees are a component of cost of product revenues and will impact the margins on the Company's tests.

If the Company is unable to maintain intellectual property protection, competitive position could be harmed.

The Company's ability to protect proprietary discoveries and technologies affects the Company's ability to compete and to achieve sustained profitability. Currently, the Company relies on a combination of copyrights, trademarks and trademark applications,

confidentiality or non-disclosure agreements, material transfer agreements, licenses, work-for-hire agreements and invention assignment agreements to protect intellectual property rights. The Company also maintains as trade secrets certain company know-how and technological innovations designed to provide the Company with a competitive advantage in the marketplace. Currently, including both U.S. and foreign patent applications, the Company has only two issued U.S. patents and twelve pending patent applications relating to various aspects of the Company's technology. While the Company does not currently intend to pursue additional patent applications, it is possible that pending patent applications and any future applications may not result in issued patents. Even if patents are issued, third parties may independently develop similar or competing technology that avoids the Company's patents. Further, the Company cannot be certain that the steps that have been taken will prevent the misappropriation of the Company's trade secrets and other confidential information and technology, particularly in foreign countries where the Company does not have intellectual property rights.

The Company may become involved in lawsuits or other proceedings to protect or enforce patents or other intellectual property rights, which could be time-consuming and costly to defend, and could result in loss of significant rights and the assessment of treble damages.

From time to time the Company may face intellectual property infringement (or misappropriation) claims from third parties. Some of these claims may lead to litigation. The outcome of any such litigation can never be guaranteed, and an adverse outcome could affect the Company negatively. For example, were a third-party to succeed on an infringement claim against the Company, the Company may be required to pay substantial damages (including up to treble damages if such infringement were found to be willful). In addition, the Company could face an injunction, barring the Company from conducting the allegedly infringing activity. The outcome of the litigation could require the Company to enter into a license agreement which may not be pursuant to acceptable or commercially reasonable or practical terms or which may not be available at all. It is also possible that an adverse finding of infringement against the Company may require the Company to dedicate substantial resources and time in developing non-infringing alternatives, which may or may not be possible. In the case of diagnostic tests, the Company would also need to include non-infringing technologies which would require the Company to re-validate tests. Any such re-validation, in addition to being costly and time consuming, may be unsuccessful.

Furthermore, the Company may initiate claims to assert or defend intellectual property against third parties. Any intellectual property litigation, irrespective of whether the Company is the plaintiff or the defendant, and regardless of the outcome, is expensive and time-consuming, and could divert management’s attention from the Company's business and negatively affect operating results or financial condition. The Company may not be able to prevent, alone or with third-party collaborators or suppliers, misappropriation of the Company's proprietary rights, particularly in countries where the laws may not protect those rights as fully as in the United States. In addition, interference proceedings brought by the USPTO may be necessary to determine the priority of inventions with respect to patents and patent applications or those of the Company's current or future collaborators, suppliers or customers.

Finally, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of the Company's confidential and proprietary information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the Company's financial condition.

Risks Relating to the Company's International Operations

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

The Company's business strategy incorporates international expansion, including recent acquisitions which have provided facilities in Australia, and the possibility of establishing and maintaining other locations outside of the United States and expanding relationships with biopharmaceutical, academic and governmental research organizations. Doing business internationally involves a number of risks, including:

- multiple, conflicting and changing laws and regulations such as tax and transfer pricing laws, export and import restrictions, employment laws, regulatory requirements and other governmental approvals, permits and licenses;

- being subject to additional privacy and cybersecurity laws, including the Australian Privacy Act of 1988;

- failure by the Company or distributors to obtain regulatory approvals for the sale or use of tests in various countries, including failure to achieve “CE Marking”, a conformity mark which is required to market in vitro diagnostic medical devices in the European Economic Area and which is broadly accepted in other international markets;

- difficulties in managing foreign operations;

- financial risks, such as longer payment cycles, difficulty enforcing contracts and collecting accounts receivable and exposure to foreign currency exchange rate fluctuations;

- reduced protection for intellectual property rights;

- natural disasters, political and economic instability, including wars, terrorism and political unrest, outbreak of disease, boycotts, curtailment of trade and other business restrictions; and

- failure to comply with the Foreign Corrupt Practices Act, including its books and records provisions and its anti-bribery provisions, by maintaining accurate information and control over sales and distributors’ activities.

Any of these risks, if encountered, could significantly harm future international expansion and operations and, consequently, have a material adverse effect on the Company's financial condition, results of operations and cash flows.

The Company's operating results may be adversely affected by fluctuations in foreign currency exchange rates and restrictions on the deployment of cash across global operations.

Although the Company reports operating results in U.S. dollars, a portion of the Company's revenues and expenses are or will be denominated in currencies other than the U.S. dollar, particularly in Australia and Europe. Fluctuations in foreign currency exchange rates can have a number of adverse effects on the Company. Because the Company's consolidated financial statements are presented in U.S. dollars, the Company must translate revenues, expenses and income, as well as assets and liabilities, into U.S. dollars at exchange rates in effect during or at the end of each reporting period. Therefore, changes in the value of the U.S. dollar against other currencies will affect revenues, income from operations, other income (expense), net and the value of balance sheet items originally denominated in other currencies. There is no guarantee that the Company's financial results will not be adversely affected by currency exchange rate fluctuations. In addition, in some countries the Company could be subject to strict restrictions on the movement of cash and the exchange of foreign currencies, which could limit the Company's ability to use these funds across its global operations.

The Company could be adversely affected by violations of the U.S. Foreign Corrupt Practices Act and other worldwide anti-bribery laws.

The FCPA and anti-bribery laws in other jurisdictions generally prohibit companies and their intermediaries from making improper payments for the purpose of obtaining or retaining business or other commercial advantage. The Company's policies mandate compliance with these anti-bribery laws, which often carry substantial penalties, including criminal and civil fines, potential loss of export licenses, possible suspension of the ability to do business with the federal government, denial of government reimbursement for products and exclusion from participation in government health care programs. The Company may operate in jurisdictions that have experienced governmental and private sector corruption to some degree, and, in certain circumstances, strict compliance with anti-bribery laws may conflict with certain local customs and practices. The Company cannot assure that the internal control policies and procedures always will protect the Company from reckless or other inappropriate acts committed by affiliates, employees or agents. Violations of these laws, or allegations of such violations, could have a material adverse effect on the Company's business, financial position and results of operations.

Risks Relating to the Company's Common Stock

The price of the Company's common stock has been and could remain volatile, and the market price of common stock may decrease.

The market price of the Company's common stock has historically experienced and may continue to experience significant volatility. From January 2015 through March 27, 2020, the market price of the Company's common stock has fluctuated from a high of $382.50 per share in the third quarter of 2015, to a low of $2.00 per share in the fourth quarter of 2019. Market prices for securities of development-stage life sciences companies have historically been particularly volatile. The factors that may cause the market price of the Company's common stock to fluctuate include, but are not limited

- progress, or lack of progress, in developing and commercializing the Company's proprietary tests;
- the Company's ability to recruit and retain qualified regulatory and research and development personnel;
- changes in the relationship with key collaborators, suppliers, customers and third parties;
- changes in the market valuation or earnings of competitors or companies viewed as similar to the Company;
- changes in key personnel;
- depth of the trading market in the Company's common stock;
- changes in the Company's capital structure, such as future issuances of securities or the incurrence of additional debt;
- the granting or exercise of employee stock options or other equity awards;
- realization of any of the risks described under this section titled “Risk Factors”; and
- general market and economic conditions.

In addition, the equity markets have experienced significant price and volume fluctuations that have affected the market prices for the securities of newly public companies for a number of reasons, including reasons that may be unrelated to business or operating performance. These broad market fluctuations may result in a material decline in the market price of the Company's common stock and you may not be able to sell your shares at prices you deem acceptable. In the past, following periods of volatility in the equity markets, securities class action lawsuits have been instituted against public companies. Such litigation, if instituted against the Company, could result in substantial cost and the diversion of management attention.

Reports published by securities or industry analysts, including projections in those reports that exceed actual results, could adversely affect the Company's common stock price and trading volume.

Securities research analysts establish and publish their own periodic projections for the Company's business. These projections may vary widely from one another and may not accurately predict the results the Company actually achieves. The Company's stock price may decline if the actual results do not match securities research analysts’ projections. Similarly, if one or more of the analysts who writes reports on the Company downgrades the Company's stock or publishes inaccurate or unfavorable research about the Company's business, stock price could decline. If one or more of these analysts ceases coverage of the Company or fails to publish reports on the Company regularly, the Company's stock price or trading volume could decline. While the Company expects securities research analyst coverage, if no securities or industry analysts begin to cover the Company, the trading price for the Company's stock and the trading volume could be adversely affected.

The Company is incurring significant costs and devotes substantial management time as a result of operating as a public company.

As a public company, the Company is incurring significant legal, accounting and other expenses. For example, in addition to being required to comply with certain requirements of the Sarbanes-Oxley Act of 2002, the Company is required to comply with certain requirements of the Dodd Frank Wall Street Reform and Consumer Protection Act, as well as rules and regulations subsequently implemented by the SEC, including the establishment and maintenance of effective disclosure and financial controls and changes in corporate governance practices. The Company expects that compliance with these requirements will continue to increase legal and financial compliance costs and will make some activities more time consuming and costly. In addition, the Company expects that management and other personnel will continue to need to divert attention from operational and other business matters to devote substantial time to these public company requirements.

The Sarbanes-Oxley Act requires, among other things, that the Company maintains effective internal control over financial reporting and disclosure controls and procedures. In particular, the Company must perform system and process evaluation and testing of internal control over financial reporting to allow management to report on the effectiveness of internal control over financial reporting, as required by Section 404 of the Sarbanes-Oxley Act. In addition, if the Company loses status as a “smaller reporting company,” the Company will be required to have the Company's independent registered public accounting firm attest to the effectiveness of internal control over financial reporting. The Company's compliance with Section 404 of the Sarbanes-Oxley Act, as applicable, requires the Company to incur substantial accounting expense and expend significant management efforts. The Company currently does not have an internal audit group, and the Company will need to continue to hire additional accounting and financial staff with appropriate public company experience and technical accounting knowledge. If the Company or the independent registered public accounting firm identify deficiencies in the Company's internal control over financial reporting that are deemed to be material weaknesses, the market price of the Company's stock could decline and the Company could be subject to sanctions or investigations by the NASDAQ, the SEC or other regulatory authorities, which would require additional financial and management resources.

The Company's ability to successfully implement the Company's business plan and maintain compliance with Section 404, as applicable, requires the Company to be able to prepare timely and accurate financial statements. The Company expects that the Company will need to continue to improve existing, and implement new operational and financial systems, procedures and controls

to manage the Company's business effectively. Any delay in the implementation of, or disruption in the transition to, new or enhanced systems, procedures or controls, may cause operations to suffer and the Company may be unable to conclude that internal control over financial reporting is effective and to obtain an unqualified report on internal controls from the Company's auditors as required under Section 404 of the Sarbanes-Oxley Act. If the Company fails to maintain an effective system of internal control over financial reporting, the Company may not be able to accurately report financial results, and current and potential stockholders may lose confidence in the Company's financial reporting. This, in turn, could have an adverse impact on trading prices for the Company's common stock, and could adversely affect the Company's ability to access the capital markets.

Anti-takeover provisions of the Company's certificate of incorporation, bylaws and Delaware law could make an acquisition of the Company, which may be beneficial to the Company's stockholders, more difficult and may prevent attempts by the Company's stockholders to replace or remove the current members of the board and management.

Certain provisions of the Company's amended and restated certificate of incorporation and bylaws could discourage, delay or prevent a merger, acquisition or other change of control that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares. Furthermore, these provisions could prevent or frustrate attempts by the Company's stockholders to replace or remove members of the board of directors. These provisions also could limit the price that investors might be willing to pay in the future for the Company's common stock, thereby depressing the market price of the Company's common stock. Stockholders who wish to participate in these transactions may not have the opportunity to do so. These provisions, among other things:

- authorize the board of directors to issue, without stockholder approval, preferred stock, the rights of which will be determined at the discretion of the board of directors and that, if issued, could operate as a “poison pill” to dilute the stock ownership of a potential hostile acquirer to prevent an acquisition that the board of directors does not approve;
- establish advance notice requirements for stockholder nominations to the board of directors or for stockholder proposals that can be acted on at stockholder meetings; and
- limit who may call a stockholder meeting.

In addition, the Company is governed by the provisions of Section 203 of the Delaware General Corporation Law, or DGCL, which may, unless certain criteria are met, prohibit large stockholders, in particular those owning 15% or more of the voting rights on the Company's common stock, from merging or combining with the Company for a prescribed period of time.

Because the Company does not expect to pay cash dividends for the foreseeable future, you must rely on appreciation of the Company's common stock price for any return on your investment. Even if the Company changes that policy, the Company may be restricted from paying dividends on the Company's common stock.

The Company does not intend to pay cash dividends on shares of common stock for the foreseeable future. Any determination to pay dividends in the future will be at the discretion of the board of directors and will depend upon results of operations, financial performance, contractual restrictions, restrictions imposed by applicable law and other factors the board of directors deems relevant. Accordingly, you will have to rely on capital appreciation, if any, to earn a return on your investment in the Company's common stock. Investors seeking cash dividends in the foreseeable future should not purchase the Company's common stock.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

As of December 31, 2019, the Company had leases for 5,800 square feet in Hershey, Pennsylvania and 1,959 square feet in Bundoora, Australia and a license to use 994 square feet of laboratory facilities in Clayton, Australia. The lease agreements have escalating lease payments and expire in November 2020 and July 2021, respectively, and the license agreement has a flat license fee subject to Consumer Price Index-based adjustment and expires in October 2024.

In 2020, the Company began leasing a laboratory in Gilles Plains, SA and an administrative office in Modbury, SA. These leases expire in January 2023 and February 2023, respectively.

Item 3. Legal Proceedings

On April 5, 2018 and April 12, 2018, purported stockholders of the Company filed nearly identical putative class action lawsuits in the U.S. District Court for the District of New Jersey, against the Company, Panna L. Sharma, John A. Roberts, and Igor Gitelman, captioned *Ben Phetteplace v. Cancer Genetics, Inc. et al.*, No. 2:18-cv-05612 and *Ruo Fen Zhang v. Cancer Genetics, Inc. et al*, No. 2:18-06353, respectively. The complaints alleged violations of Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 and SEC Rule 10b-5 based on allegedly false and misleading statements and omissions regarding the Company's business, operational, and financial results. The lawsuits sought, among other things, unspecified compensatory damages in connection with purchases of the Company's stock between March 23, 2017 and April 2, 2018, as well as interest, attorneys' fees, and costs. On August 28, 2018, the Court consolidated the two actions in one action captioned *In re Cancer Genetics, Inc. Securities Litigation* (the "Securities Litigation") and appointed shareholder Randy Clark as the lead plaintiff. On October 30, 2018, the lead plaintiff filed an amended complaint, adding Edward Sitar as a defendant and seeking, among other things, compensatory damages in connection with purchases of CGI stock between March 10, 2016 and April 2, 2018. On December 31, 2018, Defendants filed a motion to dismiss the amended complaint for failure to state a claim. The Court granted the defendants' motion to dismiss during the oral argument and on February 25, 2020, the Court issued a written order dismissing the case with prejudice. The Lead Plaintiff has not appealed the dismissal.

In addition, on June 1, 2018, September 20, 2018, and September 25, 2018, purported stockholders of the Company filed nearly identical derivative lawsuits on behalf of the Company in the U.S. District Court for the District of New Jersey against the Company (as a nominal defendant) and current and former members of the Company's Board of Directors and current and former officers of the Company. The three cases are captioned: *Bell v. Sharma et al*., No. 2:18-cv-10009-CCC-MF, *McNeece v. Pappajohn et al.*, No. 2:18-cv-14093, and *Workman v. Pappajohn, et al.*, No. 2:18-cv-14259 (the "Derivative Litigation"). The complaints allege claims for breach of fiduciary duty, violations of Section 14(a) of the Securities Exchange Act of 1934 (premised upon alleged omissions in the Company's 2017 proxy statement), and unjust enrichment, and allege that the individual defendants failed to implement and maintain adequate controls, which resulted in ineffective disclosure controls and procedures, and conspired to conceal this alleged failure. The lawsuits seek, among other things, damages and/or restitution to the Company, appropriate equitable relief to remedy the alleged breaches of fiduciary duty, and attorneys' fees and costs. On November 9, 2018, the Court in the *Bell v. Sharma* action entered a stipulation filed by the parties staying the *Bell* action until the Securities Litigation is dismissed, with prejudice, and all appeals have been exhausted; or the defendants' motion to dismiss in the Securities Litigation is denied in whole or in part; or either of the parties in the *Bell* action gives 30 days' notice that they no longer consent to the stay. On December 10, 2018, the parties in the *McNeece* action filed a stipulation that is substantially identical to the *Bell* stipulation. On February 1, 2019, the Court in the Workman action granted a stipulation that is substantially identical to the Bell stipulation. On May 15, 2020, the plaintiff's in the Workman action filed a notice of voluntary dismissal to the original action. The plaintiff's in the McNeece action sent an identical notice that they intend to file a similar notice of voluntary dismissal to their original action. Based upon the above dismissal of the securities class action litigation, the Company anticipates the plaintiffs in the remaining derivative lawsuit may voluntarily dismiss their action as well. The Company is unable to predict the ultimate outcome of the Derivative Litigation and therefore cannot estimate possible losses or ranges of losses, if any. The Company is expensing legal costs associated with the loss contingency as incurred.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information

The Company's common stock trades on The NASDAQ Capital Market under the symbol "CGIX."

Holders

As of December 31, 2019, the Company had approximately 35 holders of record of the Company's common stock. The number of record holders was determined from the records of the transfer agent and does not include beneficial owners of common stock whose shares are held in the names of various security brokers, dealers, and registered clearing agencies. The transfer agent of the Company's common stock is Continental Stock Transfer & Trust, 17 Battery Place, 8th Floor, New York, New York, 10004.

Dividends

The Company has never declared dividends on the Company's equity securities, and currently do not plan to declare dividends on shares of the Company's common stock in the foreseeable future. The Company expects to retain future earnings, if any, for use in the operation and expansion of the Company's business. The Company's loan agreements prohibit the Company from paying cash dividends on the Company's common stock and the terms of any future loan agreements the Company enters into or any debt securities the Company may issue are likely to contain similar restrictions on the payment of dividends. Subject to the foregoing, the payment of cash dividends in the future, if any, will be at the discretion of the board of directors and will depend upon such factors as earnings levels, capital requirements, overall financial condition and any other factors deemed relevant by the board of directors.

Item 6. Selected Financial Data.

Not applicable.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

As used herein, the "Company" refers to Cancer Genetics, Inc. and its wholly owned subsidiaries: Cancer Genetics Italia, S.r.l., Gentris, LLC, and vivoPharm Pty, Ltd., except as expressly indicated or unless the context otherwise requires. The following Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") is intended to help facilitate an understanding of the Company's financial condition and its historical results of operations for the periods presented. This MD&A should be read in conjunction with the audited consolidated financial statements and notes thereto included in this annual report on Form 10-K. This MD&A may contain forward-looking statements that involve risks and uncertainties. For a discussion on forward-looking statements, see the information set forth in the Introductory Note to this Annual Report under the caption "Forward Looking Statements", which information is incorporated herein by reference. The share numbers in the following discussion reflect a 1-for-30 reverse stock split that the Company effected October 24, 2019.

Overview

The Company is focused on supporting the efforts of the biotechnology and pharmaceutical industries to develop innovative new drug therapies. Until the closing of the Business Disposals (as defined below) in July 2019, the Company was an emerging leader in enabling precision medicine in oncology by providing multi-disciplinary diagnostic and data solutions, facilitating individualized therapies through the Company's diagnostic tests, services and molecular markers. Following the Business Disposals, the Company currently has an extensive set of anti-tumor referenced data based on predictive xenograft and syngeneic tumor models from the acquisition of vivoPharm, Pty Ltd. ("vivoPharm") in 2017, to provide Discovery Services such as contract research services, focused primarily on unique specialized studies to guide drug discovery and development programs in the oncology and immuno-oncology fields.

The Company offers preclinical services such as predictive tumor models, human orthotopic xenografts and syngeneic immuno-oncology relevant tumor models in its U.S. operations, and is a leader in the field of immuno-oncology preclinical services for its global customers. This service is supplemented with GLP toxicology and extended bioanalytical services in the Company's Australia-based operations.

Net cash used in operating activities from continuing operations was $3.2 million and $3.2 million for the years ended December 31, 2019 and 2018, respectively, and the Company had unrestricted cash and cash equivalents of $3.9 million at December 31, 2019, an increase of $3.7 million from December 31, 2018. The Company has working capital from continuing operations at December 31, 2019 of $1.4 million. In addition, the Company has $1.2 million of liabilities associated with its discontinuing operations that will be funded primarily from its continuing operations.

The Company does not project that cash at December 31, 2019 will be sufficient to fund normal operations for the twelve months from the issuance of these financial statements in the Annual Report on Form 10-K. The Company's ability to continue as a going concern is dependent on reduced losses and improved future cash flows. Alternatively, the Company may be required to raise additional equity or debt capital, or consummate other strategic transactions. These factors raise substantial doubt about the Company's ability to continue as a going concern. The Company can provide no assurance that these actions will be successful or that additional sources of financing will be available on favorable terms, if at all.

Business Disposals - Discontinuing Operations

BioServe Biotechnologies

On April 26, 2018, the Company sold its India subsidiary, BioServe Biotechnologies (India) Private Limited ("BioServe") to Reprocell, Inc., for $1.8 million.

siParadigm, Inc.

On July 5, 2019, the Company entered into an asset purchase agreement (the "Clinical Agreement") by and among the Company and siParadigm, LLC ("siParadigm"), pursuant to which the Company sold to siParadigm certain assets associated with the Company's clinical laboratory business (the "Clinical Business," and such assets, the "Designated Assets") and agreed to cease operating the Clinical Business. The Designated Assets include intellectual property, equipment and customer lists associated with the Clinical Business, and for a period the Company was providing certain transitional services to siParadigm pursuant to the Clinical Agreement. The cash consideration paid by siParadigm at closing was $747 thousand, which includes $45 thousand for certain equipment plus a $1.0 million advance payment of the Earn-Out (as defined below), less $177 thousand of supplier invoices paid directly by siParadigm, an adjustment of $11 thousand and transaction costs of $110 thousand. The Earn-Out, to be paid over

the 24 months post-closing, is based on fees for all tests performed by siParadigm for the Company's clinical customers during the 12-month period following the closing (the "Earn-Out"). The Clinical Business sale (together with the BioPharma Disposal defined below, the "Business Disposals") was completed on July 8, 2019.

Interpace Biosciences, Inc.

On July 15, 2019, the Company entered into a secured creditor asset purchase agreement (the "BioPharma Agreement") by and among the Company, Gentris, LLC, a wholly owned subsidiary of the Company, Partners for Growth IV, L.P. ("PFG"), Interpace Biosciences, Inc. ("IDXG") and a newly-formed subsidiary of IDXG, Interpace BioPharma, Inc. ("Buyer"). The BioPharma Agreement provided for a consensual private foreclosure sale by PFG of all assets relating to the Company's BioPharma Business (as defined in the BioPharma Agreement) to Buyer (the "BioPharma Disposal"). The BioPharma Disposal was consummated on July 15, 2019.

Pursuant to the BioPharma Agreement, Buyer purchased from PFG certain assets and assumed certain liabilities of the Company relating to the BioPharma Business, providing as gross consideration $23.5 million, less certain closing adjustments totaling $2.0 million, of which $7.7 million was settled in the form of a promissory note issued by Buyer to the Company (the "Excess Consideration Note") and the remainder was paid to PFG in cash. PFG utilized the cash proceeds to satisfy the outstanding balances of the Silicon Valley Bank ("SVB") asset-based revolving line of credit ("ABL") and the $6.0 million term note to PFG ("PFG Term Note"), and to satisfy certain transaction expenses. The balance of $2.3 million was delivered to the Company in addition to the Excess Consideration Note. The Excess Consideration Note which required interest-only quarterly payments at a rate of 6% per year, was settled on October 24, 2019 for $6.0 million, including interest of $24 thousand. The Buyer withheld from the settlement of the Excess Consideration Note $775 thousand for a net worth adjustment (assets less liabilities) of the BioPharma business ("Net Worth"), $153 thousand to secure collection of certain older accounts receivable of the Company purchased by Buyer ("AR Holdback") and an additional $735 thousand as security for indemnification obligations of the Company for any breaches of certain limited warranties and covenants of the Company and other specified items, subject to agreed-upon caps, baskets and survival periods as set forth in the BioPharma Agreement ("Indemnification Holdback"). The Company received the full amounts of the AR Holdback and the Indemnification Holdback in April and May 2020, respectively.

The Company and Buyer also entered into a transition services agreement (the "TSA") pursuant to which the Company and Buyer are providing certain services to each other to accommodate the transition of the BioPharma Business to Buyer. In particular, the Company agreed to provide to Buyer, among other things, certain personnel services, payroll processing, administration services and benefit administration services (collectively, the "Payroll and Benefits Services"), for a period not to exceed six months from July 15, 2019, subject to the terms and conditions of the TSA, in exchange for payment or reimbursement, as applicable, by Buyer for the costs related thereto, including salaries and benefits for certain of the Company's BioPharma employees during the transition period. The Company continues to provide the Payroll and Benefits Services under the TSA with respect to a limited number of employees. In addition, the Buyer is reimbursing the Company, in part, for the salaries and benefits of John A. Roberts, the Company's Chief Executive Officer, and Glenn Miles, the Company's Chief Financial Officer.

The above business disposals have been classified as discontinuing operations in conformity with accounting principles generally accepted in the United States of America. Accordingly, the operations and balances of BioServe and the Company's BioPharma and Clinical operations have been reported as discontinuing operations. Unless otherwise indicated, information in the MD&A relates to continuing operations.

2019 Offerings

In January 2019, the Company closed two public offerings and issued an aggregate of 952 thousand shares of common stock for $5.4 million, net of expenses and discounts of $1.1 million. The Company also issued 67 thousand warrants to its underwriters in conjunction with these offerings.

Note Payable to Atlas Sciences, LLC

On October 21, 2019, the Company issued an unsecured promissory note to Atlas Sciences, LLC ("Atlas Sciences"), an affiliate of Iliad Research and Trading, L.P. ("Iliad"), for $1.3 million ("Note Payable"). The Company received consideration of $1.3 million, reflecting an original issue discount of $88 thousand and expenses payable by the Company of $10 thousand. The Note Payable has a 12-month term and bears interest at 10% per annum. The proceeds from the Note Payable were utilized to partially repay the Convertible Note (see Note 8 to the audited consolidated financial statements included in Part II Item 8 of this Annual Report on Form 10-K).

Key Factors Affecting the Company's Results of Operations and Financial Condition

The Company's wholly-owned subsidiary, *vivo*Pharm, provides proprietary preclinical oncology and immuno-oncology services, offering integrated services in different disease areas to the biotechnology and pharmaceutical industries. *vivo*Pharm is a leader in orthotopic and metastases tumor models. The Company provides all services including toxicology testing and bioanalytical analysis to GLP. *vivo*Pharm specializes in conducting studies tailored to guide drug development, starting from compound libraries and ending with a comprehensive set of *in vitro* and *in vivo* data and reports, as needed for Investigational New Drug (IND) filing.

The Company's ability to complete such studies is dependent upon its ability to leverage its collaborative relationships with pharmaceutical and biotechnology companies and leading institutions to facilitate its research and obtain data for its quality assurance and test validation efforts.

The Company believes that the factors discussed in the following paragraphs have had and are expected to continue to have a material impact on its results of operations and financial condition.

Revenues from Continuing Operations

Revenue from the Company's Discovery Services comes from preclinical oncology and immuno-oncology services offered to its biotechnology and pharmaceutical customers. The Company is a leader in orthotopic and metastases tumor models and offer whole body imaging, in addition to toxicology testing and bioanalytical analysis. Discovery Services are designed to specialize in conducting studies tailored to guide drug development, starting from compound libraries and ending with a comprehensive set of *in vitro* and *in vivo* data and reports, as needed for Investigational New Drug (IND) filing.

During the year ended December 31, 2019,three customers accounted for approximately 61% of the consolidated revenue from continuing operations. During the year ended December 31, 2018, three customers accounted for approximately 53% of the consolidated revenue from continuing operations.

Cost of Revenues from Continuing Operations

The Company's cost of revenues consists principally of internal personnel costs, including non-cash stock-based compensation, laboratory consumables, shipping costs, overhead and other direct expenses, such as specimen procurement and third-party validation studies. The Company continues to pursue various strategies to control its cost of revenues, including automating the Company's processes through more efficient technology and attempting to negotiate improved terms with its suppliers.

Operating Expenses from Continuing Operations

The Company classifies its operating expenses into five categories: research and development, sales and marketing, general and administrative, impairment of goodwill and merger costs. The Company's operating expenses principally consist of personnel costs, including non-cash stock-based compensation, outside services, laboratory consumables and overhead, development costs, marketing program costs and legal and accounting fees.

Research and Development Expenses. Research and development expenses from continuing operations relate to the Company's allocation of losses from its joint venture with Mayo Foundation for Medical Education and Research. The Company was in the process of winding down the joint venture during 2019, and the joint venture was dissolved in February 2020.

General and Administrative Expenses. General and administrative expenses consist principally of personnel-related expenses, professional fees, such as legal, accounting and business consultants, occupancy costs, bad debt and other general expenses.

Sales and Marketing Expenses. The Company's sales and marketing expenses consist principally of personnel and related overhead costs for its business development team and their support personnel, travel and entertainment expenses, and other selling costs including sales collaterals and trade shows. The Company expects its sales and marketing expenses to remain relatively flat as it continues to operate and grow its Discovery Services business.

Impairment of Goodwill: During 2019, the Company recorded a goodwill impairment charge of$2.9 million after considering the effects of the Business Disposals and declines in its stock price. If the Company is not successful in executing its strategic business plans, there may be further impairments in the future.

Merger Costs. In the pursuit of various strategic options for the Company, legal and other professional costs are incurred while evaluating, negotiating, executing and implementing merger and acquisition alternatives.

Coronavirus (COVID-19) Pandemic. On March 11, 2020 the World Health Organization declared the novel strain of coronavirus ("COVID-19") a global pandemic and recommended containment and mitigation measures worldwide. In addition, as the Company is located in New Jersey, the Company is currently under a shelter-in-place mandate and many of its customers worldwide are similarly impacted. The global outbreak of COVID-19 continues to rapidly evolve, and the extent to which COVID-19 may impact the Company's business will depend on future developments, which are highly uncertain and cannot be predicted with confidence, such as the ultimate geographic spread of the disease, the duration of the outbreak, travel restrictions and social distancing in the United States and other countries, business closures or business disruptions, and the effectiveness of actions taken in the United States and other countries to contain and treat the disease. As a healthcare provider, the Company is still providing Discovery Services and has yet to experience a slowdown in its project work, however, the future of many projects may be delayed. The Company continues to vigilantly monitor the situation with its primary focus on the health and safety of its employees and clients.

Results of Operations

Years Ended December 31, 2019 and 2018

The following table sets forth certain information concerning the Company's results of continuing operations for the periods shown (in thousands):

	Year Ended December 31,		Change	
	2019	2018	**$**	**%**
Revenue	**$ 7,305**	$ 4,932	$ 2,373	48 %
Cost of revenues	**3,701**	3,090	611	20 %
Research and development	**—**	154	(154)	-100 %
General and administrative	**5,171**	6,716	(1,545)	-23 %
Sales and marketing	**1,146**	1,197	(51)	-4 %
Impairment of goodwill	**2,873**	—	2,873	N/A
Merger costs	**117**	1,464	(1,347)	-92 %
Loss from continuing operations	**(5,703)**	(7,689)	1,986	-26 %
Interest expense, net	**(1,329)**	(298)	(1,031)	346 %
Change in fair value of acquisition note payable	**4**	136	(132)	-97 %
Change in fair value of other derivatives	**86**	(86)	172	-200 %
Change in fair value of warrant liability	**70**	3,732	(3,662)	-98 %
Change in fair value of siParadigm Earn-Out	**(935)**	—	(935)	N/A
Change in fair value of Excess Consideration Note	**93**	—	93	N/A
Gain on troubled debt restructuring	**258**	—	258	N/A
Other expense	**59**	—	59	N/A
Loss before income taxes	**(7,397)**	(4,205)	(3,192)	76 %
Income tax benefit	**512**	—	512	N/A
Net loss from continuing operations	**$ (6,885)**	$ (4,205)	$ (2,680)	64 %

Non-GAAP Financial Information

In addition to disclosing financial results in accordance with United States generally accepted accounting principles ("GAAP"), the table below contains non-GAAP financial measures that the Company believes are helpful in understanding and comparing its past financial performance and its future results, and are reflected as "Adjusted EBITDA." The Company uses Adjusted EBITDA to normalize its operations. The Company defined adjusted EBITDA as earnings before (1) net interest expense, (2) taxes, (3) depreciation and amortization, (4) non-cash stock-based compensation, (5) goodwill impairment, (7) gain on troubled debt restructuring and (6) changes in fair value of various assets and liabilities that are remeasured on a recurring basis. These non-GAAP financial measures should not be considered a substitute for, or superior to, financial measures calculated in accordance with GAAP, and the financial results calculated in accordance with GAAP and reconciliations from these results should be carefully evaluated. Management believes that these non-GAAP measures provide useful information about the Company's core operating results and cash flow performance and thus are appropriate to enhance the overall understanding of the Company's past financial performance and its prospects for the future. The non-GAAP financial measures are included in the table below.

Reconciliation from GAAP to Non-GAAP Results (in thousands):

	Year Ended December 31,	
	2019	2018
Reconciliation of net loss from continuing operations:		
Net loss from continuing operations	**$ (6,885)**	$ (4,205)
Adjustments:		
Interest expense, net	**1,329**	298
Depreciation	**159**	310
Amortization	**454**	491
Stock-based compensation	**263**	530
Impairment of goodwill	**2,873**	—
Merger costs	**117**	1,464
Change in fair value of acquisition note payable	**(4)**	(136)
Change in fair value of other derivatives	**(86)**	86
Change in fair value of warrant liability	**(70)**	(3,732)
Change in fair value of siParadigm Earn-Out	**935**	—
Change in fair value of Excess Consideration Note	**(93)**	—
Gain on troubled debt restructuring	**(258)**	—
Income tax benefit	**(512)**	—
Adjusted EBITDA (loss) from continuing operations	**$ (1,778)**	$ (4,894)

Adjusted EBITDA loss from continuing operations decreased 64% to $1.8 million during the year ended December 31, 2019, from an Adjusted EBITDA loss of $4.9 million during the year ended December 31, 2018.

Revenue from Continuing Operations

Revenue from continuing operations increased 48%, or $2.4 million, to $7.3 million for the year ended December 31, 2019, from $4.9 million for the year ended December 31, 2018, principally due to an increase in the number of clinical studies conducted in the Company's U.S. operations from sponsors based in the U.S. and Europe, which resulted in a higher volume of active projects as the demand for its CRO services continued to increase throughout the year.

Cost of Revenues from Continuing Operations

Cost of revenues from continuing operations increased 20%, or $611 thousand, to $3.7 million for the year ended December 31, 2019, from $3.1 million for the year ended December 31, 2018, principally due to increased usage of lab supplies of $431 thousand, outsourced labor of $124 thousand and payroll costs and benefits of $110 thousand required to support the increase in revenue. Gross margin increased from 37% to 49% during the year ended December 31, 2019. The increase in gross margin was caused by gaining operating leverage over the Company's fixed costs associated with its laboratory operations and personnel as its revenue increased incrementally higher than its related costs.

Operating Expenses from Continuing Operations

Research and Development Expenses. Research and development expenses from continuing operations decreased $154 thousand due to winding down the joint venture with the Mayo Foundation for Medical Education and Research.

General and Administrative Expenses. General and administrative expenses from continuing operations decreased 23%, or $1.5 million to $5.2 million for the year ended December 31, 2019, from $6.7 million for the year ended December 31, 2018 primarily due to decreased legal costs of $1.2 million and decreased costs of other professional services of $557 thousand as a result of negotiating fee arrangements with certain vendors. The Company also had a $207 thousand reduction in director fees primarily as a result of the directors waiving past due compensation of $263 thousand in exchange for stock options valued at $54 thousand. Other causes for the decline include reduced stock-based compensation expense of $251 thousand and a $237 thousand decrease in NASDAQ and transfer agent fees during the year ended December 31, 2019. These reductions were offset, in part, by an increase

in salaries and bonuses of $302 thousand, an increase in depreciation and amortization expense of $149 thousand and increases in software and other office supplies of $88 thousand and $87 thousand, respectively.

Impairment of Goodwill. During the year ended December 31, 2019, the Company recorded impairment of goodwill of $2.9 million after considering the effects of the Business Disposals and declines in its stock price.

Merger Costs. During the year ended December 31, 2019, the Company recognized $117 thousand of merger costs associated with the Business Disposals, as compared to $1.5 million during the year ended December 31, 2018 related to its failed merger with NovellusDx, Ltd. ("NDX").

Interest Expense, Net

Net interest expense from continuing operations increased by $1.0 million during the year ended December 31, 2019 primarily due to two financing agreements that were only in place for a portion of the year ended December 31, 2018. The Company incurred $571 thousand of interest on the Convertible Note and the Advance from NDX (defined below) during the year ended December 31, 2019, compared to $175 thousand during the year ended December 31, 2018. The Company also amortized $1.1 million of debt discounts on these two agreements during the year ended December 31, 2019 compared to $517 thousand during the year ended December 31, 2018. The Company entered into a standstill agreement with Iliad during the first quarter of 2019, which resulted in $202 thousand of additional fees. Later the Company entered into a second standstill agreement that reduced the conversion price on a portion of the Convertible Note, resulting in $547 thousand of additional interest. In June 2019, the Company defaulted on the Convertible Note, creating a 15% increase in the outstanding balance at the date of default, which totaled $409 thousand. The Company allocated $1.5 million and $389 thousand of this interest to discontinuing operations during the years ended December 31, 2019 and 2018, respectively.

The interest expense was partially offset by interest income received from the Excess Consideration Note of $107 thousand during the year ended December 31, 2019.

Change in Fair Value of Warrant Liability

Changes in fair value of some of the Company's common stock warrants may impact its results. Accounting rules require the Company to record certain of its warrants as a liability, measure the fair value of these warrants each quarter and record changes in that value in earnings. The Company recognized non-cash income of $70 thousand for the year ended December 31, 2019, as compared to non-cash income of $3.7 million for the year ended December 31, 2018, as a result of fluctuations in its stock price. In the future, if the its stock price increases, the Company would record a non-cash charge as a result of changes in the fair value of its common stock warrants. Consequently, the Company may be exposed to non-cash charges, or it may record non-cash income, as a result of this warrant exposure in future periods.

Change in Fair Value of siParadigm Earn-Out

The siParadigm Earn-Out relates to the disposal of the Company's Clinical Business in July 2019. During the year ended December 31, 2019, the Company recognized a $935 thousand loss due to the decrease in fair value of the siParadigm Earn-Out due to the loss of several significant Clinical Business customers in the latter part of 2019.

Change in Fair Value of Excess Consideration Note

The Excess Consideration Note relates to the disposal of its Biopharma Business in July 2019. During the year ended December 31, 2019, the Company recognized a $93 thousand gain due to the increase in fair value of the Excess Consideration Note due to changes in the expected settlement of the AR Holdback and the Indemnification Holdback.

Gain on Troubled Debt Restructuring

During the year ended December 31, 2019, the Company recognized a $258 thousand gain on troubled debt restructuring related to a settlement agreement reached with NDX ("NDX Settlement Agreement") covering $1.5 million in funds advanced to the Company prior to the failed merger in 2018 ("Advance from NDX"). The NDX Settlement Agreement required the Company to repay $1.1 million of principal and interest on the Advance from NDX. Upon receipt of these payments, the Advance from NDX was reduced to $450 thousand. The remaining amount due is interest-free and payable in monthly installments of $50 thousand, which began in November 2019.

Income Tax Benefit

On April 4, 2019, the Company sold $11.6 million of gross State of New Jersey NOLs relating to the 2017 tax year as well as $72 thousand of state research and development tax credits. The sale resulted in the net receipt by the Company of $512 thousand. The Company did not sell any NOLs during 2018. The Company's effective rate for the years ended December 31, 2019 and 2018 was 7.1% and 0.0%, respectively.

Liquidity and Capital Resources

Sources and Uses of Liquidity

The primary sources of the Company's liquidity have been cash collections from customers, funds generated from debt financings and equity financings, and cash received from the Business Disposals. The Company expects to continue generating additional cash from its customers in the future and from its Business Disposals for a limited time until the Earn-Out is paid as discussed below.

During January 2019, the Company closed two public offerings and issued an aggregate of 952 thousand shares of common stock for $5.4 million, net of expenses and discounts of $1.1 million. In October 2019, the Company issued the Note Payable to Atlas Sciences for $1.3 million, net of discounts, which was remitted directly to Iliad to satisfy a portion of the Convertible Note balance. The Company also sold $11.6 million of gross State of New Jersey NOL's relating to the 2017 tax year as well as $72 thousand of state research and development tax credits in April 2019. The sale resulted in the net receipt by the Company of $512 thousand.

In July 2019, the Company completed two business disposals, resulting in an aggregate of $9.0 million of net cash proceeds at the time of closing; however, $1.0 million of the funds received is an advance from siParadigm that is being deducted from the Earn-Out amounts due during the period. At December 31, 2019. the estimated future Earn-Out payments from siParadigm, net of the remaining balance of the advance, were $285 thousand, which are expected to be collected in variable monthly payments through July 2021; the monthly payment amount is based on the number of tests performed by siParadigm for the Company's former Clinical Services' customers. At December 31, 2019, the Company also holds a note receivable from IDXG (the Excess Consideration Note) for $888 thousand. The balance at December 31, 2019 represents the AR Holdback of $153 thousand and the Indemnification Holdback of $735 thousand, which were due to the Company on January 15, 2020 and were received in full in April and May 2020, respectively.

The primary uses of the Company's liquidity have been cash used to fund the Company's operations, as detailed in the cash flows section below, as well as cash used to repay the Company's lenders. During 2019, the Company settled the Convertible Note owed to Iliad and significantly reduced the amount of its Advance from NDX. The Note Payable to Atlas Sciences matures in October 2020; furthermore, Atlas Sciences is entitled to demand monthly redemptions of up to $300 thousand beginning in April 2020. The Company is also required to remit monthly installments of $50 thousand to NDX until the Advance from NDX is repaid. Subsequent to year-end, an additional $250 thousand was repaid on the Advance from NDX.

At December 31, 2019, the Company does not project that cash at December 31, 2019 will be sufficient to fund normal operations for the twelve months from the issuance of these financial statements in the Annual Report on Form 10-K. The Company's ability to continue as a going concern is dependent on reduced losses and improved future cash flows. Alternatively, the Company may be required to raise additional equity or debt capital, or consummate other strategic transactions. These factors raise substantial doubt about the Company's ability to continue as a going concern for the next twelve months from the issuance of these financial statements in the Annual Report on Form 10-K. The Company can provide no assurance that these actions will be successful or that additional sources of financing will be available on favorable terms, if at all.

Cash Flows from Continuing Operations

The Company's net cash flow from operating, investing and financing activities from continuing operations for the periods below were as follows (in thousands):

	Year Ended December 31,	
	2019	2018
Cash provided by (used in) continuing operations:		
Operating activities	**$ (3,239)**	$ (3,201)
Investing activities	**(28)**	(17)
Financing activities	**3,420**	3,957
Effect of foreign currency exchange rates on cash and cash equivalents and restricted cash	**(17)**	(59)
Net increase in cash and cash equivalents and restricted cash from continuing operations	**$ 136**	$ 680

The Company had cash and cash equivalents and restricted cash of $4.2 million and $511 thousand at December 31, 2019 and 2018, respectively.

The $136 thousand increase in cash and cash equivalents and restricted cash from continuing operations was principally the result of $5.4 million received in the 2019 Offerings, net of expenses. These receipts were offset, in part, by $3.2 million of net cash used to fund operations, $1.0 million used to settle the remainder of the Convertible Note with Iliad, and $892 thousand of payments on the Advance from NDX.

The $680 thousand increase in cash and cash equivalents and restricted cash from continuing operations for the year ended December 31, 2018, principally resulted from proceeds of $2.5 million and $1.5 million from the Convertible Note and Advance from NDX, respectively, offset, in part, by net cash used in operations of $3.2 million.

Cash Used in Operating Activities from Continuing Operations

During the year ended December 31, 2019, cash used in operating activities from continuing operations was $3.2 million, consisting of net loss from continuing operations of $6.9 million, positive non-cash adjustments of $5.4 million and additional uses of cash relating to changes in working capital items of $1.7 million. Changes in cash flows from working capital items were primarily driven by a net increase in other current assets of $279 thousand, a net decrease in accounts payable, accrued expenses and deferred revenue of $1.3 million, and a decrease in obligations under operating leases of $189 thousand. These uses of cash were partially offset by a net decrease in accounts receivable of $81 thousand.

During the year ended December 31, 2018, cash used in operating activities from continuing operations was $3.2 million, consisting of net loss from continuing operations of $4.2 million, negative non-cash adjustments of $2.0 million and additional cash provided relating to changes in working capital items of $3.0 million. Cash flows from changes in working capital items were primarily driven by a net increase in accounts payable, accrued expenses and deferred revenue of $2.9 million and a net reduction in accounts receivable of $296 thousand. These cash flows were offset by an increase in other current assets of $87 thousand and other non-current assets of $49 thousand.

Cash Provided by Investing Activities from Continuing Operations

Net cash used in continuing investing activities was $28 thousand for the year ended December 31, 2019, relating to purchases of fixed assets.

Net cash used in continuing investing activities was $17 thousand for the year ended December 31, 2018, relating to purchases of fixed assets.

Cash Provided by Financing Activities from Continuing Operations

Net cash provided by continuing financing activities was $3.4 million for the year ended December 31, 2019 and principally resulted from net proceeds received from the 2019 Offerings of $5.4 million, offset, in part, by principal payments of $1.0 million and $892 thousand on the Convertible Note and the Advance from NDX, respectively, as well as $72 thousand of payments on finance leases.

Net cash provided by continuing financing activities was $4.0 million for the year ended December 31, 2018 and resulted from proceeds of $2.5 million and $1.5 million from the Convertible Note and Advance from NDX, respectively.

Capital Resources and Expenditure Requirements

The Company expects to continue to incur operating losses in the future, as the costs of being public have significant effect on losses that keep the Company from being profitable. The Company expects losses to continue, only to the extent that the business does not outpace the public company-related expenses, such as legal and audit fees and director's and officer's liability insurance. These losses have had, and will continue to have, an adverse effect on the Company's working capital, total assets and stockholders' equity. Because of the numerous risks and uncertainties associated with its revenue growth and costs associated with being a public company, the Company is unable to predict when it will become profitable, and it may never become profitable. Even if the Company does achieve profitability, it may not be able to sustain or increase profitability on a quarterly or annual basis. The Company's inability to achieve and then maintain profitability would negatively affect its business, financial condition, results of operations and cash flows. As a result, it may need to raise additional capital to fund its current operations, to repay certain outstanding indebtedness and to fund its business to meet its long-term business objectives through public or private equity offerings, debt financings, borrowings or strategic partnerships coupled with an investment in the Company or a combination thereof. If the Company raises additional funds through the issuance of convertible debt securities, or other debt securities, these securities could be secured and could have rights senior to those of its common stock. In addition, any new debt incurred by the Company could impose covenants that restrict its operations and increase its interest expense. The issuance of any new equity securities will also dilute the interest of current stockholders.

In October 2019, the Company settled the Convertible Note owed to Iliad and now owes$1.3 million in principal amount to Atlas Sciences under a new unsecured note due in October 2020. The Company also owes an aggregate of $350 thousand to NDX as of December 31, 2019 pursuant to the NDX Settlement Agreement, which is payable in monthly installments of $50 thousand. The Company has no material capital commitments outside of its existing debt arrangements.

Even after the Business Disposals, the Company does not project that cash at December 31, 2019 will be sufficient to fund normal operations for the twelve months from the issuance of these financial statements in the Annual Report on Form 10-K. The Company's ability to continue as a going concern is dependent on reduced losses and improved future cash flows. Alternatively, the Company may be required to raise additional equity or debt capital, or consummate other strategic transactions. These factors raise substantial doubt about the Company's ability to continue as a going concern for the next twelve months from the issuance of these financial statements in the Annual Report on Form 10-K. The Company can provide no assurance that these actions will be successful or that additional sources of financing will be available on favorable terms, if at all. The Company made this assessment in light of the expected impact of COVID 19.

The Company's forecast of the period of time through which its current financial resources will be adequate to support its operations and its expected operating expenses are forward-looking statements and involve risks and uncertainties. Actual results could vary materially and negatively as a result of a number of factors, including:

- the Company's ability to adapt its business for future developments in light of the global outbreak of the novel coronavirus, which continues to rapidly evolve;
- the Company's ability to achieve profitability by increasing sales of the Company's preclinical CRO services focused on oncology and immuno-oncology;
- the Company's ability to raise additional capital to repay its indebtedness and meet its liquidity needs;
- the Company's ability to execute on its marketing and sales strategy for its preclinical research services and gain acceptance of its services in the market;
- the Company's ability to keep pace with rapidly advancing market and scientific developments;
- the Company's ability to satisfy U.S. (including FDA) and international regulatory requirements with respect to its services;
- the Company's ability to maintain its present customer base and obtain new customers;
- competition from preclinical CRO services companies, many of which are much larger than the Company in terms of employee base, revenues and overall number of customers and related market share;
- the Company's ability to maintain the Company's clinical and research collaborations and enter into new collaboration agreements with highly regarded organizations in the field of oncology so that, among other things, the Company has access to thought leaders in advanced preclinical and translational science;
- potential product liability or intellectual property infringement claims;
- the Company's dependency on third-party manufacturers to supply it with instruments and specialized supplies;
- the Company's ability to attract and retain a sufficient number of scientists, clinicians, sales personnel and other key personnel with extensive experience in oncology and immuno-oncology, who are in short supply;
- the Company's ability to obtain or maintain patents or other appropriate protection for the intellectual property in its proprietary tests and services;

- the Company's ability to effectively manage its international businesses in Australia, Europe and China, including the expansion of its customer base and volume of new contracts in these markets;
- the Company's dependency on the intellectual property licensed to the Company or possessed by third parties; and
- the Company's ability to adequately support future growth; and
- other risks discussed in the section entitled "Risk Factors."

The consolidated financial statements for the year ended December 31, 2019 were prepared on the basis of a going concern, which contemplates that the Company will be able to realize assets and discharge liabilities in the normal course of business. Accordingly, they do not give effect to adjustments that would be necessary should the Company be required to liquidate its assets. The ability of the Company to meet its obligations, and to continue as a going concern is dependent upon the availability of future funding and the continued growth in revenues. The consolidated financial statements do not include any adjustments that might result from the outcome of these uncertainties.

Future Contractual Obligations

The following table reflects a summary of the Company's estimates of future contractual obligations as ofDecember 31, 2019. The information in the table reflects future unconditional payments and is based on the terms of the relevant agreements, appropriate classification of items under U.S. GAAP as currently in effect and certain assumptions, such as the interest rate on the Company's variable debt that was in effect as of December 31, 2019. Future events could cause actual payments to differ from these amounts.

	Payments Due by Period				
Contractual Obligations	**Total**	**Less than 1 Year**	**1-3 Years**	**3-5 Years**	**More than 5 years**
(dollars in thousands)					
Principal and interest on unsecured debt	$ 1,789	$ 1,789	$ —	$ —	$ —
Finance lease obligations, including interest, for equipment	209	84	80	45	—
Operating lease obligations relating to administrative offices and laboratories	220	209	11	—	—
Total	$ 2,218	$ 2,082	$ 91	$ 45	$ —

Income Taxes

Over the past several years the Company has generated operating losses in all jurisdictions in which it may be subject to income taxes. As a result, the Company has accumulated significant net operating losses and other deferred tax assets. Because of the Company's history of losses and the uncertainty as to the realization of those deferred tax assets, a full valuation allowance has been recognized. The Company does not expect to report a benefit related to the deferred tax assets until it has a history of earnings, if ever, that would support the realization of its deferred tax assets.

Off-Balance Sheet Arrangements

Since inception, the Company has not engaged in any off-balance sheet activities as defined in Item 303(a)(4) of Regulation S-K.

Critical Accounting Policies and Significant Judgment and Estimates

The Company's management's discussion and analysis of financial condition and results of operations is based on its consolidated financial statements, which have been prepared in accordance with U.S. GAAP. The preparation of consolidated financial statements requires management to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses and related disclosure of contingent assets and liabilities. On an ongoing basis, the Company evaluates its estimates based on historical experience and makes various assumptions, which management believes to be reasonable under the circumstances, which form the basis for judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

The notes to the Company's audited consolidated financial statements contain a summary of its significant accounting policies. Management considers the following accounting policies critical to the understanding of the results of the Company's operations:

- Revenue recognition;
- Accounts receivable and bad debts;

- Warrant liabilities and other derivatives;
- Stock-based compensation;
- Income taxes; and
- Impairment of intangibles and long-lived assets.

Recent Accounting Pronouncements

The notes to the Company's audited consolidated financial statements contain a summary of recent accounting pronouncements.

Item 7A. Qualitative and Quantitative Disclosures about Market Risk

The Company has exposure to financial market risks, including changes in foreign currency exchange rates, and risk associated with how it invests its cash.

Foreign Exchange Risk

The Company conducts business in foreign markets through its subsidiary in Australia (vivoPharm Pty Ltd.). For the years ended December 31, 2019 and 2018, approximately 20% and 33%, respectively, of the Company's continuing revenues were earned outside the United States and collected in local currency. The Company is subject to risk for exchange rate fluctuations between such local currencies and the United States dollar and the subsequent translation of the Australia Dollar or Euro to United States dollars. The Company currently does not hedge currency risk. The translation adjustments for the years ended December 31, 2019 and 2018 were not significant.

Investment of Cash

The Company invests its cash primarily in money market funds. Because of the short-term nature of these investments, the Company does not believe it has material exposure due to market risk. The impact to the Company's financial position and results of operations from likely changes in interest rates is not material.

Item 8. Financial Statements and Supplementary Data

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Cancer Genetics, Inc. and Subsidiaries

Consolidated Financial Report December 31, 2019

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors of
Cancer Genetics, Inc. and Subsidiaries

Opinion on the Financial Statements
We have audited the accompanying consolidated balance sheet of Cancer Genetics, Inc. (the "Company") as of December 31, 2019, the related consolidated statements of operations and other comprehensive loss, changes in stockholders' equity and cash flows for the year ended December 31, 2019, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019, and the results of its operations and its cash flows for the year ended December 31, 2019, in conformity with accounting principles generally accepted in the United States of America.

Explanatory Paragraph - Going Concern
The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As more fully described in Note 2, the Company has minimal working capital, has incurred significant losses and needs to raise additional funds to meet its obligations and sustain its operations. These conditions raise substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 2. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Retrospective Adjustments
We also have audited the adjustments to the financial statements as of December 31, 2018 and for the year then ended to retrospectively apply the change in accounting for the reverse stock split and discontinued operations, as described in Note 1. In our opinion, such adjustments are appropriate and have been properly applied. We were not engaged to audit, review, or apply any procedures to the 2018 financial statements of the Company other than with respect to the adjustments and, accordingly, we do not express an opinion or any other form of assurance on the 2018 financial statements taken as a whole.

Adoption of New Accounting Standard
As discussed in Note 3 to the consolidated financial statements, the Company has changed its method of accounting for leases in 2019 due to the adoption of the guidance in ASC Topic 842, Leases ("Topic 842"), as amended, effective January 1, 2019, using the modified retrospective approach.

Basis for Opinion
These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audit. 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audit 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 audit included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audit provides a reasonable basis for our opinion.

/s/ Marcum LLP

Marcum LLP

We have served as the Company's auditor since 2019**.**

Houston, Texas
May 29, 2020

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders
Cancer Genetics, Inc. and Subsidiaries

Opinion on the Financial Statements
We have audited the accompanying consolidated balance sheet of Cancer Genetics, Inc. and its subsidiaries (the Company) as of December 31, 2018, and the related consolidated statements of operations and other comprehensive loss, changes in stockholders' equity and cash flows for the year then ended, and the related notes to the consolidated financial statements (collectively, the financial statements). In our opinion, except for effects of the adjustments, if any, as might have been determined to be necessary had we been engaged to audit the Company's restatement for discontinued operations and a reverse stock-split, as described below, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018, and the results of its operations and its cash flows for the year then ended, in conformity with accounting principles generally accepted in the United States of America.

Restatement for 2019 transactions requiring retrospective accounting treatment in 2018 financial statements
We were not engaged to audit the restatement of the 2018 financial statements and disclosures for discontinued operations and a reverse stock-split, as discussed in Note 1 to the 2019 financial statements.

Substantial Doubt About the Company's Ability to Continue as a Going Concern
The accompanying 2018 financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 2 to the 2018 financial statements, the Company has suffered recurring losses, and has an accumulated deficit and negative cash flows from operations. The Company is also in violation of certain debt covenants. This raises substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 2 to the 2018 financial statements. The 2018 financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Change in Accounting Principle
As discussed in Note 3 to the 2018 financial statements, the Company changed its method of accounting for recognizing revenue effective January 1, 2018 due to the adoption of Accounting Standards Update No. 2014-09, "Revenue from Contracts with Customers".

Basis for Opinion
These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audit. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

Except as discussed above, we conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ RSM US LLP

We served as the Company's auditor from 2010 to 2019.

New York, New York
April 15, 2019

CANCER GENETICS, INC. AND SUBSIDIARIES

Consolidated Balance Sheets
(in thousands, except par value)

	December 31,	
	2019	2018
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	**$ 3,880**	$ 161
Restricted cash	**350**	—
Accounts receivable	**696**	777
Earn-Out from siParadigm, current portion	**747**	—
Excess Consideration Note	**888**	—
Other current assets	**546**	267
Current assets of discontinuing operations	**71**	23,250
Total current assets	**7,178**	24,455
FIXED ASSETS, net of accumulated depreciation	**558**	558
OTHER ASSETS		
Operating lease right-of-use assets	**94**	—
Restricted cash	**—**	350
Earn-Out from siParadigm, less current portion	**356**	—
Patents and other intangible assets, net of accumulated amortization	**2,895**	3,349
Investment in joint venture	**92**	92
Goodwill	**3,090**	5,963
Other	**641**	639
Total other assets	**7,168**	10,393
Total Assets	**$ 14,904**	$ 35,406
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES		
Accounts payable and accrued expenses	**$ 2,072**	$ 4,598
Obligations under operating leases, current portion	**193**	—
Obligations under finance leases, current portion	**68**	45
Deferred revenue	**1,217**	1,214
Convertible note, net	**—**	2,481
Note payable, net	**1,277**	—
Advance from NovellusDx, Ltd., net	**350**	535
Advance from siParadigm, current portion	**566**	—
Other derivatives	**—**	86
Current liabilities of discontinuing operations	**1,229**	19,189
Total current liabilities	**6,972**	28,148
Obligations under operating leases, less current portion	**10**	—
Obligations under finance leases, less current portion	**107**	54
Advance from siParadigm, less current portion	**252**	—
Deferred rent payable and other	**—**	154
Warrant liability	**178**	248
Total Liabilities	**7,519**	28,604
STOCKHOLDERS' EQUITY		
Preferred stock, authorized 9,764 shares $0.0001 par value, none issued	**—**	—
Common stock, authorized 100,000 shares, $0.0001 par value, 2,104 and 924 shares issued and outstanding as of December 31, 2019 and 2018, respectively	**—**	—

Additional paid-in capital	**171,783**	164,458
Accumulated other comprehensive income	**26**	60
Accumulated deficit	**(164,424)**	(157,716)
Total Stockholders' Equity	**7,385**	6,802
Total Liabilities and Stockholders' Equity	**$ 14,904**	$ 35,406

See Notes to Consolidated Financial Statements.

CANCER GENETICS, INC. AND SUBSIDIARIES

Consolidated Statements of Operations and Other Comprehensive Loss
(in thousands, except per share amounts)

	Years Ended December 31,	
	2019	2018
Revenue	**$ 7,305**	$ 4,932
Cost of revenues	**3,701**	3,090
Gross profit	**3,604**	1,842
Operating expenses:		
Research and development	**—**	154
General and administrative	**5,171**	6,716
Sales and marketing	**1,146**	1,197
Impairment of goodwill	**2,873**	—
Merger costs	**117**	1,464
Total operating expenses	**9,307**	9,531
Loss from continuing operations	**(5,703)**	(7,689)
Other income (expense):		
Interest expense	**(1,437)**	(319)
Interest income	**108**	21
Change in fair value of acquisition note payable	**4**	136
Change in fair value of other derivatives	**86**	(86)
Change in fair value of warrant liability	**70**	3,732
Change in fair value of siParadigm Earn-Out	**(935)**	—
Change in fair value of Excess Consideration Note	**93**	—
Gain on troubled debt restructuring	**258**	—
Other income	**59**	—
Total other income (expense)	**(1,694)**	3,484
Loss before income taxes	**(7,397)**	(4,205)
Income tax benefit	**512**	—
Loss from continuing operations	**(6,885)**	(4,205)
Income (loss) from discontinuing operations (including gain on disposal of businesses of $8,370 during the year ended December 31, 2019 and loss on disposal of business of $78 during the year ended December 31, 2018)	**177**	(16,168)
Net loss	**(6,708)**	(20,373)
Foreign currency translation loss	**(34)**	(9)
Comprehensive loss	**$ (6,742)**	$ (20,382)
Basic and diluted net loss per share from continuing operations	**$ (3.57)**	$ (4.62)
Basic and diluted net income (loss) per share from discontinuing operations	**0.09**	(17.77)
Basic and diluted net loss per share	**$ (3.48)**	$ (22.39)
Basic and diluted weighted-average shares outstanding	**1,928**	910

See Notes to Consolidated Financial Statements.

CANCER GENETICS, INC. AND SUBSIDIARIES

Consolidated Statements of Changes in Stockholders' Equity
Years Ended December 31, 2019 and 2018
(in thousands)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total
	Shares	Amount				
Balance, December 31, 2017	925	$ —	$ 161,530	$ 69	$ (134,834)	$ 26,765
Stock based compensation - employees	(1)	—	921	—	—	921
Fair value of warrants reclassified from liabilities to equity	—	—	423	—	—	423
Modification of 2017 Debt warrants	—	—	83	—	—	83
Beneficial conversion feature on Convertible Note	—	—	328	—	—	328
Beneficial conversion feature on Advance from NovellusDx, Ltd.	—	—	1,173	—	—	1,173
Transition adjustment for adoption of Accounting Standards Codification Topic 606	—	—	—	—	(2,509)	(2,509)
Unrealized loss on foreign currency translation	—	—	—	(9)	—	(9)
Net loss	—	—	—	—	(20,373)	(20,373)
Balance, December 31, 2018	924	—	164,458	60	(157,716)	6,802
Stock based compensation—employees	—	—	370	—	—	370
Issuance of common stock with warrants for cash - 2019 Offerings, net of expenses and discounts	952	—	5,412	—	—	5,412
Issuance of common stock - Iliad Research and Trading, L.P. conversions and exchanges	225	—	962	—	—	962
Increase in fair value of embedded conversion option	—	—	547	—	—	547
Fractional shares settlement	(2)	—	(5)	—	—	(5)
Issuance of common stock to vendor	5	—	39	—	—	39
Unrealized loss on foreign currency translation	—	—	—	(34)	—	(34)
Net loss	—	—	—	—	(6,708)	(6,708)
Balance, December 31, 2019	2,104	$ —	$ 171,783	$ 26	$ (164,424)	$ 7,385

See Notes to Consolidated Financial Statements.

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CANCER GENETICS, INC. AND SUBSIDIARIES

Consolidated Statements of Cash Flows
(in thousands)

	Years Ended December 31,	
	2019	2018
CASH FLOWS FROM OPERATING ACTIVITIES		
Net loss	**$ (6,708)**	$ (20,373)
Loss (income) from discontinuing operations	**(177)**	16,168
Net loss from continuing operations	**(6,885)**	(4,205)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	**159**	310
Amortization	**454**	491
Stock-based compensation	**263**	530
Amortization of operating lease right-of-use assets	**144**	—
Change in fair value of warrant liability, acquisition note payable and other derivatives	**(160)**	(3,782)
Amortization of discount of debt and debt issuance costs	**497**	226
Issuance of common stock to vendor	**39**	—
Interest added to Convertible Note	**268**	—
Modification of 2017 Debt warrants	**—**	83
Loss in equity-method investment	**—**	154
Change in fair value of siParadigm Earn-Out	**935**	—
Change in fair value of Excess Consideration note	**(93)**	—
Gain on troubled debt restructuring	**(258)**	—
Loss on extinguishment of debt	**256**	—
Goodwill impairment	**2,873**	—
Change in working capital components:		
Accounts receivable	**81**	296
Other current assets	**(279)**	(87)
Other non-current assets	**(2)**	(49)
Accounts payable, accrued expenses and deferred revenue	**(1,342)**	2,880
Obligations under operating leases	**(189)**	—
Deferred rent payable and other	**—**	(48)
Net cash used in operating activities, continuing operations	**(3,239)**	(3,201)
Net cash used in operating activities, discontinuing operations	**(5,421)**	(9,351)
Net cash used in operating activities	**(8,660)**	(12,552)
CASH FLOWS FROM INVESTING ACTIVITIES		
Purchase of fixed assets	**(28)**	**(17)**
Net cash used in investing activities, continuing operations	**(28)**	(17)
Net cash provided by investing activities, discontinuing operations	**9,119**	1,101
Net cash provided by investing activities	**9,091**	1,084
CASH FLOWS FROM FINANCING ACTIVITIES		
Principal payments on obligations under finance leases	**(72)**	(43)
Proceeds from offerings of common stock, net of certain offering costs	**5,412**	—
Proceeds from Convertible Note	**—**	2,500
Principal payments on Convertible Note	**(1,023)**	—
Advance from NovellusDx, Ltd.	**—**	1,500
Principal payments on Advance from NovellusDx, Ltd.	**(892)**	—
Fractional shares settlement paid in cash	**(5)**	—
Net cash provided by financing activities, continuing operations	**3,420**	3,957
Net cash used in financing activities, discontinuing operations	**(115)**	(1,810)
Net cash provided by financing activities	**3,305**	2,147
Effect of foreign currency exchange rates on cash and cash equivalents and restricted cash	**(17)**	(59)
Net increase (decrease) in cash and cash equivalents and restricted cash	**3,719**	(9,380)
CASH AND CASH EQUIVALENTS AND RESTRICTED CASH		
Beginning	**511**	9,891
Ending	**$ 4,230**	$ 511
RECONCILIATION OF CASH AND CASH EQUIVALENTS AND RESTRICTED		
CASH TO THE CONSOLIDATED BALANCE SHEETS:		
Cash and cash equivalents	**$ 3,880**	$ 161
Restricted cash	**350**	350
CASH AND CASH EQUIVALENTS AND RESTRICTED CASH	**$ 4,230**	$ 511

SUPPLEMENTAL CASH FLOW DISCLOSURE		
Cash paid for interest	**$ 1,501**	$ 1,271
SUPPLEMENTAL DISCLOSURE OF NONCASH		
INVESTING AND FINANCING ACTIVITIES		
Fixed assets acquired through finance lease arrangements	**$ 145**	$ 75
Conversion of debt and accrued interest into common stock	**350**	—
Increase in fair value of conversion option	**547**	—
Exchanges of principal on Convertible Note for common stock	**612**	—
Partial pay-off of Convertible Note through note payable to Atlas Sciences, LLC	**1,250**	—
Fair value of warrants reclassified from liabilities to equity	**—**	423
Beneficial conversion feature on Convertible Note	**—**	328
Beneficial conversion feature on Advance from NovellusDx, Ltd.	**—**	1,173

See Notes to Consolidated Financial Statements.

CANCER GENETICS, INC. AND SUBSIDIARIES

Notes to Consolidated Financial Statements

Note 1. Organization, Description of Business, Reverse Stock Split, Business Disposals and Offerings

Cancer Genetics, Inc. (the "Company") supports the efforts of the biotechnology and pharmaceutical industries to develop innovative new drug therapies. Until the closing of the Business Disposals (as defined below) in July 2019, the Company was an emerging leader in enabling precision medicine in oncology by providing multi-disciplinary diagnostic and data solutions, facilitating individualized therapies through its diagnostic tests, services and molecular markers. Following the Business Disposals described below, the Company currently has an extensive set of anti-tumor referenced data based on predictive xenograft and syngeneic tumor models from the acquisition of vivoPharm, Pty Ltd. (“vivoPharm”) in 2017, to provide Discovery Services such as contract research services, focused primarily on unique specialized studies to guide drug discovery and development programs in the oncology and immuno-oncology fields.

The Company was incorporated in the State of Delaware on April 8, 1999 and, until the Business Disposals, had offices and state-of-the-art laboratories located in New Jersey and North Carolina and today continues to have laboratories in Pennsylvania and Australia. The Company’s corporate headquarters are in Rutherford, New Jersey. The Company offers preclinical services such as predictive tumor models, human orthotopic xenografts and syngeneic immuno-oncology relevant tumor models in its Hershey PA facility, and is a leader in the field of immuno-oncology preclinical services in the United States. This service is supplemented with GLP toxicology and extended bioanalytical services in its Australian-based facilities in Clayton, VIC. Beginning in February 2020, the Company also has a laboratory in Gilles Plains, SA.

Reverse Stock Split

On October 24, 2019, the Company amended its Certificate of Incorporation and effected a30-for-1 reverse stock split of its common stock. All shares and per share information referenced throughout the consolidated financial statements and footnotes have been retrospectively adjusted to reflect the reverse stock split.

Business Disposals - Discontinuing Operations

Sale of India Subsidiary

On April 26, 2018, the Company sold its India subsidiary, BioServe Biotechnologies (India) Private Limited (“BioServe”) to Reprocell, Inc., for$1.9 million, including $1.6 million in cash at closing and up to an additional$300 thousand, which was contingent upon the India subsidiary meeting a specified revenue target through August 31, 2018. The contingent consideration was reduced to $213 thousand and received in November 2018.

The BioServe disposal resulted in the following (in thousands):

Consideration received:		
Cash received at closing	$	1,600
Contingent consideration received		213
	$	1,813
Net assets sold:		
Accounts receivable, net	$	365
Other current assets		229
Fixed assets, net		608
Goodwill		735
Other noncurrent assets		98
Cash transferred at closing		49
Accounts payable, accrued expenses and deferred revenue		(180)
Deferred rent and other		(13)
	$	1,891
Loss on disposal of BioServe	$	(78)

Interpace Biosciences, Inc.

On July 15, 2019, the Company entered into a secured creditor asset purchase agreement (the "BioPharma Agreement") by and among the Company, Gentris, LLC, a wholly-owned subsidiary of the Company, Partners for Growth IV, L.P. ("PFG"), Interpace Biosciences, Inc. ("IDXG") and a newly-formed subsidiary of IDXG, Interpace BioPharma, Inc. ("Buyer"). The BioPharma Agreement provided for a consensual private foreclosure sale by PFG of all assets relating to the Company's BioPharma Business (as defined in the BioPharma Agreement) to Buyer (the "BioPharma Disposal").

Pursuant to the BioPharma Agreement, Buyer purchased from PFG certain assets and assumed certain liabilities of the Company relating to the BioPharma Business, providing as gross consideration $23.5 million, less certain closing adjustments totaling $2.0 million, of which $7.7 million was settled in the form of a promissory note issued by Buyer to the Company (the "Excess Consideration Note") and the remainder was paid to PFG in cash. PFG utilized the cash proceeds to satisfy the outstanding balances of the Silicon Valley Bank ("SVB") asset-based revolving line of credit ("ABL") and the $6.0 million term note to PFG ("PFG Term Note"), and to satisfy certain transaction expenses. The balance of $2.3 million was delivered to the Company in addition to the Excess Consideration Note.

The following is a reconciliation of the original gross sales price to the consideration received (in thousands):

Original sales price:		
Gross sales price	$	23,500
Adjustments to sales price:		
Transaction costs		(1,525)
Working capital adjustments		(2,705)
Payment of other expenses		(171)
Total adjustments to sales price		(4,401)
Consideration received	$	19,099

The BioPharma Disposal resulted in the following (in thousands):

Consideration received:		
Cash received at closing	$	2,258
Fair value of Excess Consideration Note		6,795
Repayment of ABL and accrued interest		2,906
Repayment of Term Note and accrued interest		6,250
Repayment of certain accounts payable and accrued expenses		890
Net sales price	$	19,099
Net assets sold:		
Accounts receivable	$	4,271
Other current assets		1,142
Fixed assets		2,998
Operating lease right-of-use assets		1,969
Patents and other intangible assets		42
Goodwill		10,106
Accounts payable and accrued expenses		(4,970)
Obligations under operating leases		(2,110)
Obligations under finance leases		(451)
Deferred revenue		(1,046)
	$	11,951
Gain on disposal of BioPharma Business	$	7,148

The Excess Consideration Note, which required interest-only quarterly payments at a rate of 6% per year, was settled on October 24, 2019 for $6.0 million, including interest of $24 thousand. The Buyer withheld from the settlement of the Excess Consideration Note $775 thousand for a net worth adjustment (assets less liabilities) of the BioPharma business ("Net Worth"), $153 thousand to secure collection of certain older accounts receivable of the Company purchased by Buyer ("AR Holdback") and an additional $735 thousand as security for indemnification obligations of the Company for any breaches of certain limited warranties and covenants of the Company and other specified items ("Indemnification Holdback"). The Company received the full amounts of the AR Holdback and the Indemnification Holdback in April and May 2020, respectively. The fair value of the Excess Consideration Note was $888 thousand at December 31, 2019.

The Company and Buyer also entered into a transition services agreement (the "TSA") pursuant to which the Company and Buyer are providing certain services to each other to accommodate the transition of the BioPharma Business to Buyer. In particular, the Company agreed to provide to Buyer, among other things, certain personnel services, payroll processing, administration services and benefit administration services (collectively, the "Payroll and Benefits Services"), for a reasonable period commencing July 15, 2019, subject to the terms and conditions of the TSA, in exchange for payment or reimbursement, as applicable, by Buyer for the costs related thereto, including salaries and benefits for certain of the Company's BioPharma employees during the transition period. The Company continues to provide the Payroll and Benefits Services under the TSA with respect to a limited number of employees. Such shared services amounted to $186 thousand for the year ended December 31, 2019. In addition, the Buyer is reimbursing the Company, in part, for the salaries and benefits of John A. Roberts, the Company's Chief Executive Officer, and Glenn Miles, the Company's Chief Financial Officer. Such salaries and benefits amounted to $188 thousand for the year ended December 31, 2019. Through the terms and conditions of the TSA described above, the net amount due to the Buyer is $92 thousand at December 31, 2019 for collections on behalf of the Buyer.

In connection with the closing of the BioPharma Disposal, the SVB ABL and the PFG Term Note were terminated, and all related liens were released.

siParadigm, Inc.

On July 5, 2019, the Company entered into an asset purchase agreement (the "Clinical Agreement") by and among the Company and siParadigm, LLC ("siParadigm"), pursuant to which the Company sold to siParadigm, certain assets associated with the Company's clinical laboratory business (the "Clinical Business," and such assets, the "Designated Assets"), and agreed to cease

operating its Clinical Business. The Designated Assets include intellectual property, equipment and customer lists associated with the Clinical Business, and for a period of time the Company was providing certain transitional services to siParadigm pursuant to the Clinical Agreement. The cash consideration paid by siParadigm at closing was $747 thousand, which includes $45 thousand for certain equipment plus a $1.0 million advance payment of the Earn-Out (as defined below), less $177 thousand of supplier invoices paid directly by siParadigm, an adjustment of $11 thousand and transaction costs of $110 thousand. The Clinical Business sale (together with the sale of BioServe and the BioPharma Disposal, the "Business Disposals") was completed on July 8, 2019.

The Clinical Business disposal resulted in the following (in thousands):

Consideration received:		
Cash received at closing	$	747
Fair value of Earn-Out from siParadigm		2,376
Advance from siParadigm received in cash		(1,000)
	$	2,123
Net assets sold:		
Goodwill	$	1,188
Accounts payable and accrued expenses		(287)
	$	901
Gain on disposal of Clinical Business	$	1,222

The Earn-Out, to be paid over the 24 months post-closing, is based on fees for all tests performed by siParadigm for the Company's clinical customers during the 12-month period following the closing (the "Earn-Out"). siParadigm withholds a set percentage from each monthly earn-out payment remitted to the Company as repayment of the Advance from siParadigm. The percentage withheld was 25% for earn-out payments for July through September 2019; siParadigm began withholding 75% from the earn-out payments for October 2019 and will continue withholding 75% each month until the Advance from siParadigm is paid in full. At December 31, 2019, the fair value of the current and long-term portion of the Earn-Out from siParadigm was $747 thousand and $356 thousand, respectively. In addition, the current and long-term portion of the Advance from siParadigm was $566 thousand and $252 thousand, respectively.

Under the Clinical Agreement, the Company agreed to certain non-competition and non-solicitation provisions, including that it will cease performing certain clinical tests and will not solicit or seek business from certain of its customers (other than for the Company's other lines of business) for a period of three years following the closing date.

The Business Disposals have been classified as discontinuing operations in conformity with accounting principles generally accepted in the United States of America. Accordingly, the operations and balances of BioServe and the Company's BioPharma and Clinical operations have been reported as discontinuing operations and removed from all financial disclosures of continuing operations. As permitted by Accounting Standards Codification ("ASC") 205-20, the Company elected to allocate $1.5 million and $389 thousand of interest expense from the Convertible Note to Iliad and Advance from NDX to discontinuing operations during the years ended December 31, 2019 and 2018, respectively. The interest was allocated based on the ratio of net assets sold less debt required to be paid as a result of the disposal to the Company's net assets (prior to the disposal) plus the consolidated debt not repaid as a result of the disposal. Unless otherwise indicated, information in these notes to consolidated financial statements relates to continuing operations.

2019 Offerings

On January 9, 2019, the Company entered into an underwriting agreement with H.C. Wainwright & Co., LLC ("H.C. Wainwright"), relating to an underwritten public offering of 445 thousand shares of its common stock for $6.75 per share. The Company received proceeds from the offering of $2.4 million, net of expenses and discounts of $563 thousand. The Company also issued warrants to purchase 31 thousand shares of common stock to H.C. Wainwright in connection with this offering. The warrants are exercisable for five years from the date of issuance at a per share price of $7.43. The warrants had a fair value of $168 thousand on the date of issuance and are classified as equity in the Company's Consolidated Balance Sheet.

On January 26, 2019, the Company issued 507 thousand shares of common stock at a public offering price of $6.90 per share. The Company received proceeds from the offering of $3.0 million, net of expenses and discounts of $525 thousand. The Company also issued warrants to purchase 36 thousand shares of common stock to the underwriter, H.C. Wainwright, in connection with this offering. The warrants are exercisable for five years from the date of issuance at a per share price of $7.59. The warrants had a fair value of $183 thousand on the date of issuance and are classified as equity in the Company's Consolidated Balance Sheet.

The January 9, 2019 and January 26, 2019 offerings will be referred to collectively as the "2019 Offerings." As disclosed in Note 20, certain of the Company's directors and executive officers purchased shares in the 2019 Offerings at the public offering price.

Note 2. Going Concern

At December 31, 2019, the Company's history of losses required management to assess its ability to continue operating as a going concern, according to ASC 205-40, Going Concern. Even after the disposal of its BioPharma Business and Clinical Business discussed in Note 1, the Company does not project that cash at December 31, 2019 will be sufficient to fund normal operations for the twelve months from the issuance of these financial statements in the Annual Report on Form 10-K. The Company's ability to continue as a going concern is dependent on reduced losses and improved future cash flows. Alternatively, the Company may be required to raise additional equity or debt capital, or consummate other strategic transactions. These factors raise substantial doubt about the Company's ability to continue as a going concern. The Company can provide no assurance that these actions will be successful or that additional sources of financing will be available on favorable terms, if at all.

The consolidated financial statements do not include any adjustments that might be necessary should the Company be unable to continue as a going concern.

On March 11, 2020 the World Health Organization declared the novel strain of coronavirus ("COVID-19") a global pandemic and recommended containment and mitigation measures worldwide. In addition, as the Company is located in New Jersey, it is currently under a shelter-in-place mandate and many of its customers worldwide are similarly impacted. The global outbreak of the COVID-19 continues to rapidly evolve, and the extent to which the COVID-19 may impact the Company's business will depend on future developments, which are highly uncertain and cannot be predicted with confidence, such as the ultimate geographic spread of the disease, the duration of the outbreak, travel restrictions and social distancing in the United States and other countries, business closures or business disruptions, and the effectiveness of actions taken in the United States and other countries to contain and treat the disease. As a healthcare provider, the Company is still providing Discovery Services and has yet to experience a slowdown in its project work, however, the future of many projects may be delayed. The Company continues to vigilantly monitor the situation with its primary focus on the health and safety of its employees and clients.

Note 3. Significant Accounting Policies

Basis of presentation: The Company prepares its financial statements on the accrual basis of accounting in accordance with accounting principles generally accepted in the United States of America.

Segment reporting: Operating segments are defined as components of an enterprise about which separate discrete information is used 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 developing and selling diagnostic tests and services.

Principles of consolidation: The accompanying consolidated financial statements include the accounts of Cancer Genetics, Inc. and its wholly-owned subsidiaries.

All significant intercompany account balances and transactions have been eliminated in consolidation.

Foreign currency: The Company translates the financial statements of its foreign subsidiaries, which have a functional currency in the respective country's local currency, to U.S. dollars using month-end exchange rates for assets and liabilities and average exchange rates for revenue, costs and expenses. Translation gains and losses are recorded in accumulated other comprehensive income as a component of stockholders' equity. Gains and losses resulting from foreign currency transactions that are denominated in currencies other than the entity's functional currency are included within the Consolidated Statements of Operations and Other Comprehensive Loss.

Use of estimates and assumptions: The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported

amounts of revenues and expenses during the reporting period. Significant estimates made by management include, among others, realization of amounts billed, realization of long-lived assets, realization of intangible assets, accruals for litigation and registration payments, assumptions used to value stock options, warrants and goodwill and the valuation of assets and liabilities associated with the Business Disposals. Actual results could differ from those estimates.

Risks and uncertainties: The Company operates in an industry that is subject to intense competition, government regulation and rapid technological change. the Company's operations are subject to significant risk and uncertainties including financial, operational, technological, regulatory, foreign operations, and other risks, including the potential risk of business failure.

Cash and cash equivalents: Highly liquid investments with original maturities of three months or less when purchased are considered to be cash equivalents. Financial instruments which potentially subject the Company to concentrations of credit risk consist primarily of cash and cash equivalents. The Company maintains cash and cash equivalents with high-credit quality financial institutions. At times, such amounts may exceed insured limits. The Company has not experienced any losses in such accounts and believes it is not exposed to any significant credit risk on its cash and cash equivalents.

Restricted cash: Represents cash held at financial institutions which the Company may not withdraw and which collateralizes certain of the Company's financial commitments. All of the Company's restricted cash is invested in interest bearing certificates of deposit. At December 31, 2019 and 2018, the Company's restricted cash collateralizes a $350 thousand letter of credit in favor of its former landlord, pursuant to the terms of the lease for its former Rutherford facility. The letter of credit was released on May 20, 2020.

Revenue recognition: The Company recognizes revenue in accordance with FASB Accounting Standards Codification (“ASC”) 606. The Company recognized the cumulative effect of initially applying ASC 606 as an adjustment to the balance of accumulated deficit on January 1, 2018. The transition adjustment resulted in a net reduction to the opening balance of accumulated deficit of $2.5 million on January 1, 2018 and increased deferred revenue associated with the former BioPharma Business and Discovery Services by $1.9 million and $600 thousand, respectively, due to a change in the Company's policies for recognized revenue for performance obligations fulfilled over time.

Revenue is recorded at the amount expected to be collected, which includes implicit price concessions. Performance obligations are satisfied over time and as study data is transmitted to the customer. Revenue from the Company's Discovery Services is recognized using the time elapsed method and at a point in time as the Company delivers study results to the customers. As results are delivered, the invoices are generated based on contractual rates. Some contracts have prepayments prior to services being rendered that are recorded as deferred revenue. The Company records deferred revenues (contract liabilities) when cash payments are received or due in advance of its performance, including amounts which are refundable. The Company's customer arrangements do not contain any significant financing component.

Discovery Services frequently take time to complete under their respective contacts. These times vary depending on specific contract arrangements including the length of the study and how samples are delivered to the Company for processing. However, the duration of performance obligations for Discovery Services is less than one year.

The Company excludes from the measurement of the transaction price all taxes that it collects from customers that are assessed by governmental authorities and are both imposed on and concurrent with specific revenue-producing transactions.

Accounts receivable: Accounts receivable are carried at net realizable value, which is the original invoice amount less an estimate for contractual adjustments, discounts and doubtful receivables, the amounts of which are determined by an analysis of individual accounts. The Company's policy for assessing the collectability of receivables is dependent upon the major payor source of the underlying revenue. The Company performs an assessment of credit worthiness prior to initial engagement and reassesses it periodically. Recoveries of accounts receivable previously written off are recorded when received.

Deferred revenue: Payments received in advance of services rendered are recorded as deferred revenue and are subsequently recognized as revenue in the period in which the services are performed.

Fixed assets: Fixed assets consist of diagnostic equipment and furniture and fixtures. Fixed assets are carried at cost and are depreciated using the straight-line method over the estimated useful lives of the assets, which generally range from five to twelve years. Repairs and maintenance are charged to expense as incurred while improvements are capitalized. Upon sale, retirement or disposal of fixed assets, the accounts are relieved of the cost and the related accumulated depreciation with any gain or loss recorded to the Consolidated Statements of Operations and Other Comprehensive Loss.

Fixed assets are reviewed for impairment whenever changes in circumstances indicate that the carrying amount of an asset may not be recoverable. These computations utilize judgments and assumptions inherent in the Company's estimate of future cash flows to determine recoverability of these assets. If the Company's assumptions about these assets were to change as a result of events or circumstances, the Company may be required to record an impairment loss. No impairment loss was recognized for the years ended December 31, 2019 and 2018.

Goodwill: Goodwill resulted from the purchase of vivoPharm in 2017. In accordance with ASC 350, Intangibles - Goodwill and Other, the Company is required to test goodwill for impairment and adjust for impairment losses, if any, at least annually and on an interim basis if an event or circumstance indicates that it is likely impairment has occurred. The Company's annual goodwill impairment testing date is October 1 of each year using a market approach. No such losses were incurred during the year ended December 31, 2018. During the year ended December 31, 2019, the Company recognized impairment of goodwill of $2.9 million.

Goodwill (in thousands)		
Balance, December 31, 2018 and 2017	$	5,963
Impairment of goodwill		(2,873)
Balance, December 31, 2019	$	3,090

Equity investment: The Company has an equity investment that does not have a readily determinable market value, with a cost basis of $200 thousand at December 31, 2019 and 2018. This investment is measured at cost, less impairment, if any, plus or minus changes resulting from observable price changes in ordinary transactions for the identical or similar investment of the same issuer. Changes in the fair value of the investment are recorded as net appreciation in fair value of investment in the Consolidated Statements of Operations and Other Comprehensive Loss. At December 31, 2019 and 2018, the equity investment was $200 thousand and is included in other assets on the Consolidated Balance Sheets. No net appreciation or depreciation in fair value of investment was recorded during the years ended December 31, 2019 and 2018, as there were no observable price changes in the stock.

Financing fees: Financing fees are amortized using the effective interest method over the term of the related debt. Debt is recorded net of unamortized debt issuance costs.

Warrant liability: The Company issued warrants during the 2016 Offerings and the 2017 Offering that contain a contingent net cash settlement feature, which are described herein as derivative warrants. The Company also issued warrants that were subject to a 20% reduction if the Company achieved certain financial milestones as part of its 2017 debt refinancing; these warrants were reclassified as equity during 2018 when the number of shares issuable under the agreement became fixed.

Derivative warrants are recorded as liabilities in the accompanying Consolidated Balance Sheets. These common stock purchase warrants do not trade in an active securities market, and as such, the Company estimated the fair value of these warrants using the binomial lattice, Black-Scholes and Monte Carlo valuation pricing models with the assumptions as follows: The risk-free interest rate for periods within the contractual life of the warrant is based on the U.S. Treasury yield curve. The expected life of the warrants is based upon the contractual life of the warrants. The Company uses the historical volatility of its common stock and the closing price of its shares on the NASDAQ Capital Market.

The Company computes the fair value of the warrant liability at each reporting period and the change in the fair value is recorded as non-cash expense or non-cash income. The key component in the value of the warrant liability is the Company's stock price, which is subject to significant fluctuation and is not under the Company's control. The resulting effect on the Company's net loss is therefore subject to significant fluctuation and will continue to be so until the warrants are exercised, amended or expire. Assuming all other fair value inputs remain constant, the Company will record non-cash expense when the stock price increases and non-cash income when the stock price decreases.

Derivative liabilities: The Company evaluates its debt and equity issuances to determine if those contracts or embedded components of those contracts qualify as derivatives requiring separate recognition in the Company’s financial statements. The result of this accounting treatment is that the fair value of the embedded derivative is marked-to-market each balance sheet date and recorded as a liability and the change in fair value is recorded in other income (expense) in the consolidated results of operations. In circumstances where there are multiple embedded instruments that are required to be bifurcated, the bifurcated derivative instruments are accounted for as a single, compound derivative instrument. The classification of derivative instruments, including whether such instruments should be recorded as liabilities or as equity, is reassessed at the end of each reporting period. Equity instruments that are initially classified as equity that become subject to reclassification are reclassified to liability at the fair value of the instrument on the reclassification date. Derivative instrument liabilities are classified in the balance sheet as current or non-

current based on whether or not net-cash settlement of the derivative instrument is expected within twelve months of the balance sheet date.

When the Company has determined that the embedded conversion options should not be bifurcated from their host instruments, the Company records, when necessary, discounts to convertible notes for the intrinsic value of conversion options embedded in debt instruments based upon the differences between the fair value of the underlying common stock at the commitment date of the note transaction and the effective conversion price embedded in the note. Debt discounts under these arrangements are amortized over the term of the related debt to their stated date of redemption and are recorded as interest expense in the consolidated results of operations.

Income taxes: Income taxes are provided for the tax effects of transactions reported in the consolidated financial statements and consist of taxes currently due plus deferred income taxes. Deferred income taxes are recognized for temporary differences between the financial statement and tax bases of assets and liabilities that will result in taxable or deductible amounts in the future. Deferred income taxes are also recognized for net operating loss ("NOLs") carryforwards that are available to offset future taxable income and research and development credits.

Valuation allowances are established when necessary to reduce deferred tax assets to the amount expected to be realized. The Company has established a full valuation allowance on its deferred tax assets as of December 31, 2019 and 2018; therefore, the Company has not recognized any deferred tax benefit or expense in the periods presented. However, the sale of state NOLs and research and development credits are included in current income tax benefit during the period of the sale.

ASC 740, Income Taxes, clarifies the accounting for uncertainty in income taxes recognized in the financial statements. ASC 740 provides that a tax benefit from uncertain tax positions may be recognized when it is more-likely-than-not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, based on the technical merits of the position. Income tax positions must meet a more-likely-than-not recognition threshold to be recognized. ASC 740 also provides guidance on measurement, de-recognition, classification, interest and penalties, accounting in interim periods, disclosure and transition. At December 31, 2019 and 2018 the Company had no uncertain tax positions, and the Company does not expect any changes with regards to uncertain tax positions during the year ending December 31, 2020.

The Company's policy is to recognize interest and/or penalties related to income tax matters in income tax expense. There is no accrual for interest or penalties on the Company's Consolidated Balance Sheets at December 31, 2019 or 2018, and the Company has not recognized interest and/or penalties in the Consolidated Statements of Operations and Other Comprehensive Loss for the years ended December 31, 2019 or 2018.

The Company's major taxing jurisdictions are the United States, Australia and New Jersey. The Company's tax years for 2015 through 2018 are subject to examination by the tax authorities. Generally, as of December 31, 2019, the Company is no longer subject to federal and state examinations by tax authorities for years before 2015. In Australia, the Company's tax returns are subject to examination for five years from the date of filing. However, to the extent allowed by law, the tax authorities may have the right to examine prior periods where net operating losses or tax credits were generated and carried forward, and make adjustments up to the amount of the net operating loss or credit carryforward.

Patents and other intangible assets: The Company accounts for intangible assets under ASC 350-30. Patents consisting of legal fees incurred are initially recorded at cost. The Company has also acquired patents that are initially recorded at fair value. Patents are amortized over the useful lives of the assets, which range from seven to ten years, using the straight-line method. The Company reviews the carrying value of patents at the end of each reporting period. Based upon the Company's review, there was no patent impairment related to continuing operations in 2019 or 2018.

Other intangible assets consist of vivoPharm's customer list and trade name, which are all amortized using the straight-line method over the estimated useful lives of the assets of ten years.

Research and development: Research and development costs are associated with the Company's allocation of loss from its joint venture described in Note 19. All research and development costs are expensed as they are incurred.

Stock-based compensation: Stock-based compensation is accounted for in accordance with the provisions of ASC 718, *Compensation-Stock Compensation*, which requires the measurement and recognition of compensation expense for all stock-based awards made to employees and directors based on estimated fair values on the grant date. The Company estimates the fair value of stock-based awards on the date of grant using the Black-Scholes option pricing model. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service periods using the straight-line method. See additional information in Note 14.

All issuances of stock options or other issuances of equity instruments to employees as the consideration for services received by the Company are accounted for based on the fair value of the equity instrument issued.

Fair value of financial instruments: The carrying amount of cash and cash equivalents, restricted cash, accounts receivable, accounts payable and accrued expenses, approximate their estimated fair values due to the short-term maturities of those financial instruments. The fair value of warrants recorded as derivative liabilities, the note payable to VenturEast, the Earn-Out from siParadigm, and the Excess Consideration Note are described in Notes 16 and 17.

Joint venture accounted for under the equity method: The Company records its joint venture investment following the equity method of accounting, reflecting its initial investment in the joint venture and its share of the joint venture's net earnings or losses and distributions. The Company's share of the joint venture's net loss was $0 and $154 thousand for the years ended December 31, 2019 and 2018, respectively, and is included in research and development expense on the Consolidated Statements of Operations and Other Comprehensive Loss. The Company has a net receivable due from the joint venture of $10 thousand at both December 31, 2019 and 2018, which is included in other assets in the Consolidated Balance Sheets. See additional information in Note 19.

Subsequent events: The Company has evaluated potential subsequent events through the date the financial statements were issued within our Annual Report on Form 10-K.

Recent Adopted Accounting Standards

In February 2016, the Financial Accounting Standards Board ("FASB") issued guidance codified in ASC 842, *Leases*, which supersedes the guidance in former ASC 840, *Leases*, to increase transparency and comparability among organizations by requiring recognition of right-of-use assets and lease liabilities on the balance sheet and disclosure of key information about leasing arrangements (with the exception of short-term leases). In July 2018, the FASB issued Accounting Standards Update ("ASU") 2018-11 to the existing transition guidance that allows entities to recognize a cumulative-effect adjustment to the opening balance of accumulated deficit in the period of adoption. Effective January 1, 2019, the Company adopted ASC 842 using this new transition guidance. The comparative information has not been restated and continues to be reported under the accounting standard in effect for those periods.

The Company has elected to use the package of practical expedients, which allows it to not (1) reassess whether any expired or existing contracts are considered or contain leases; (2) reassess the lease classification for any expired or existing leases; and (3) reassess the initial direct costs for any existing leases. The Company did not elect the hindsight practical expedient, which permits entities to use hindsight in determining the lease term and assessing impairment.

The most significant impact of adopting ASC 842 is related to the recognition of right-of-use assets and lease obligations for operating leases. The Company's accounting for finance leases remains substantially unchanged. The adoption of ASC 842 had no impact on the Company's consolidated statements of operations or total cash flows from operations.

The cumulative effect of the changes made to the Company's consolidated January 1, 2019 balance sheet for the adoption of ASC 842 was as follows (in thousands):

	As of December 31, 2018	Adjustment for Adoption of ASC 842	As of January 1, 2019
ASSETS			
Current assets of discontinuing operations	$ 23,250	$ 2,327	$ 25,577
Operating lease right-of-use assets	—	238	238
	$ 23,250	$ 2,565	$ 25,815
LIABILITIES			
Current liabilities of discontinuing operations	$ 19,189	$ 2,327	$ 21,516
Deferred rent payable and other	154	(154)	—
Obligations under operating leases, current portion	—	204	204
Obligations under operating leases, less current portion	—	188	188
	$ 19,343	$ 2,565	$ 21,908

In January 2017, the FASB issued ASU 2017-04, *Intangibles - Goodwill and Other (Topic 350):* "*Simplifying the Accounting for Goodwill Impairment*," which removes the requirement to perform a hypothetical purchase price allocation to measure goodwill

impairment. A goodwill impairment will now be the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. The Company adopted this standard July 1, 2019. Because the Company adopted ASU 2017-04, the Company did not have to fair value all of its assets and liabilities to determine the amount of goodwill impairment. Instead the Company impaired goodwill for the difference between the fair value of the Company and the book value of the Company's stockholders' equity.

Recent Accounting Pronouncements: In December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes*, which simplifies the accounting for income taxes by removing certain exceptions to the general principles in Topic 740. The amendments also improve consistent application of and simplify GAAP for other areas of Topic 740 by clarifying and amending existing guidance. The standard will become effective for interim and annual periods beginning after December 15, 2020, with early adoption permitted. The Company is currently evaluating whether it will early adopt. The guidance is not expected to have a material impact on the Company's consolidated financial statements.

Earnings (loss) per share: Basic earnings (loss) per share is computed by dividing net income (loss) available to common stockholders by the weighted average number of common shares assumed to be outstanding during the period of computation. Diluted earnings per share is computed similar to basic earnings per share except that the numerator is adjusted for the change in fair value of the warrant liability (only if dilutive) and the denominator is increased to include the number of dilutive potential common shares outstanding during the period using the treasury stock method. For all periods presented, all common stock equivalents outstanding were anti-dilutive.

The following table summarizes potentially dilutive adjustments to the weighted average number of common shares which were excluded from the calculation (in thousands):

	2019	2018
Common stock purchase warrants	**279**	336
Stock options	**64**	100
Restricted shares of common stock	**—**	1
Convertible note	**—**	103
Advance from NovellusDx, Ltd.	**—**	85
	343	625

Reclassifications: Certain items in the prior year consolidated financial statements have been reclassified to conform to the current presentation.

Note 4. Discontinuing Operations

As described in Note 1, the Company sold its India subsidiary, BioServe, in April 2018 and its BioPharma Business and Clinical Business in July 2019. In conjunction with the BioPharma Disposal, the Company repaid its debt to SVB and PFG. The Company elected to allocate $1.5 million and $389 thousand of interest expense from the Convertible Note to Iliad and Advance from NDX to discontinuing operations during the years ended December 31, 2019 and 2018, respectively.

Summarized results of the Company's consolidated discontinuing operations are as follows for the years ended December 31, 2019 and 2018 (in thousands):

	Year Ended December 31,	
	2019	2018
Revenue	**$ 10,066**	$ 22,538
Cost of revenues	**7,554**	15,634
Gross profit	**2,512**	6,904
Operating expenses:		
Research and development	**937**	2,334
General and administrative	**4,675**	12,468
Sales and marketing	**1,527**	4,071
Restructuring costs	**194**	2,320
Transaction costs	**560**	—
Impairment of patents and other intangible assets	**601**	—
Total operating expenses	**8,494**	21,193
Loss from discontinuing operations	**(5,982)**	(14,289)
Other income (expense):		
Interest expense	**(2,211)**	(1,801)
Gain on disposal of Clinical Business	**1,222**	—
Gain on disposal of BioPharma Business	**7,148**	—
Loss on disposal of BioServe	**—**	(78)
Total other income (expense)	**6,159**	(1,879)
Net income (loss) from discontinuing operations	**$ 177**	$ (16,168)

Consolidated carrying amounts of major classes of assets and liabilities from discontinuing operations were as follows as of December 31, 2019 and 2018 (in thousands):

	2019	2018
Current assets of discontinuing operations:		
Accounts receivable, net of allowance for doubtful accounts of $4,536 in 2019; $3,462 in 2018	**$ 71**	$ 6,261
Other current assets	**—**	1,542
Fixed assets, net of accumulated depreciation	**—**	3,498
Patents and other intangible assets, net of accumulated amortization	**—**	655
Goodwill	**—**	11,294
Current assets of discontinuing operations	**$ 71**	$ 23,250

Current liabilities of discontinuing operations		
Accounts payable and accrued expenses	**$ 1,137**	$ 8,470
Due to Interpace Biosciences, Inc.	**92**	—
Obligations under finance leases	—	610
Deferred revenue	—	1,337
Line of credit	—	2,621
Term note	—	6,000
Deferred rent payable and other	—	151
Current liabilities of discontinuing operations	**$ 1,229**	$ 19,189

Cash flows used in discontinuing operations consisted of the following for the years ended December 31, 2019 and 2018 (in thousands):

	Years Ended December 31,	
	2019	2018
Income (loss) from discontinuing operations	**$ 177**	$ (16,168)
Adjustments to reconcile income (loss) from discontinuing operations to net cash used in operating activities, discontinuing operations		
Depreciation	**542**	1,292
Amortization	**613**	21
Provision for bad debts	**1,074**	2,514
Stock-based compensation	**107**	391
Amortization of operating lease right-of-use assets	**358**	—
Amortization of discount of debt and debt issuance costs	**601**	291
Interest added to Convertible Note	**343**	—
Loss on disposal of fixed assets and sale of India subsidiary	**—**	204
Loss on extinguishment of debt	**328**	—
Gain on disposal of Clinical business	**(1,222)**	—
Gain on disposal of BioPharma business	**(7,148)**	—
Change in working capital components:		
Accounts receivable	**845**	745
Other current assets	**398**	417
Other non-current assets	**2**	50
Accounts payable, accrued expenses and deferred revenue	**(2,163)**	886
Obligations under operating leases	**(217)**	—
Deferred rent payable and other	**(151)**	6
Due to IDXG	**92**	—
Net cash used in operating activities, discontinuing operations	**$ (5,421)**	$ (9,351)

Note 5. Revenue

The Company has remaining performance obligations as of December 31, 2019 and 2018 of $1.2 million and $1.2 million, respectively. Deferred revenue of $40 thousand from December 31, 2018 was recognized as revenue in 2019. Remaining performance obligations as of December 31, 2019 of approximately $800 thousand are expected to be recognized as revenue in 2020.

During the year ended December 31, 2019,three customers accounted for approximately 61% of the Company's consolidated revenue from continuing operations. During the year ended December 31, 2018, three customers accounted for approximately 53% of the Company's consolidated revenue from continuing operations.

During the years ended December 31, 2019 and 2018, approximately 24% and 33%, respectively, of the Company's continuing operations revenue was earned outside the United States and collected in local currency.

Note 6. Other Current Assets

At December 31, 2019 and 2018, other current assets consisted of the following (in thousands):

	2019	2018
Lab supplies	**$ 77**	$ —
Prepaid expenses	**469**	267
	$ 546	$ 267

Note 7. Lease Commitments

Operating Leases

The Company leases its laboratory, research facility and administrative office space under various operating leases. Following the Business Disposals, the Company assigned its office leases in North Carolina and New Jersey to Buyer. At December 31, 2019, the Company has approximately 5,800 square feet in Hershey, Pennsylvania and 1,959 square feet in Bundoora, Australia. The Company has escalating lease agreements for its Pennsylvania and Australia spaces, which expire in November 2020 and June 2021, respectively. These leases require monthly rent with periodic rent increases. The difference between minimum rent and straight-line rent was recorded as deferred rent payable until the adoption of ASC 842 on January 1, 2019, as described in Note 1. The terms of the Company's former New Jersey lease required that a $350 thousand security deposit for the facility be held in a stand by letter of credit in favor of the landlord (see Note 9). In addition, under the assignment of leases related to the Company's New Jersey headquarters, the Buyer became obligated to replace the $350 thousand letter of credit held by the New Jersey landlord and secured by the Company's cash collateral in August 2019; however, the letter of credit was not replaced until April 2020. The cash collateral was released on May 20, 2020.

The Company determines if an arrangement is a lease at inception. Operating leases are included in operating lease right-of-use ("ROU") assets, obligations under operating leases, current portion, and obligations under operating leases, less current portion on its Consolidated Balance Sheets.

ROU assets represent the Company's right to use an underlying asset for the lease term and lease obligations represent the Company's obligation to make lease payments arising from the lease. Operating lease ROU assets and operating lease obligations are recognized based on the present value of the future minimum lease payments over the lease term at the commencement date. As the Company's leases do not provide an implicit rate, the Company uses its incremental borrowing rate based on the information available at the commencement date in determining the present value of lease payments. The Company's incremental borrowing rate was determined by adjusting its secured borrowing interest rate for the longer-term nature of its leases. The Company's variable lease payments primarily consist of maintenance and other operating expenses from its real estate leases. Variable lease payments are excluded from the ROU assets and lease liabilities and are recognized in the period in which the obligation for those payments is incurred. The operating lease ROU asset also includes any lease payments made and excludes lease incentives incurred. The Company's lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Lease expense for minimum lease payments is recognized on a straight-line basis over the lease term.

The Company has lease agreements with lease and non-lease components. The Company has elected to account for these lease and non-lease components as a single lease component. The Company is also electing not to apply the recognition requirements to short-term leases of twelve months or less and instead will recognize lease payments as expense on a straight-line basis over the lease term.

The components of operating and finance lease expense were as follows for the year ended December 31, 2019 for continuing operations (in thousands):

Finance lease cost:		
Amortization of right-of use assets	$	35
Interest on lease liabilities		13
Operating lease cost		220
Short-term lease cost		109
Variable lease cost		55
	$	432

Supplemental cash flow related to operating leases of the Company's continuing operations was as follows for the year ended December 31, 2019 (in thousands):

Cash paid amounts included in the measurement of lease liabilities:		
Operating cash flows used for operating leases	$	220

The Company did not enter into any significant operating leases during the year ended December 31, 2019.

Finance Leases

The Company also leases scientific equipment under various finance leases, which have been capitalized at the present value of the minimum lease payments. Finance leases are included in fixed assets, net of accumulated depreciation and obligations under finance leases. The equipment under these finance leases had a cost of $302 thousand and accumulated depreciation of $84 thousand, as of December 31, 2019.

Minimum future lease payments under all finance and operating leases as of December 31, 2019 are as follows (in thousands):

	Finance Leases	Operating Leases	Total
December 31,			
2020	$ 84	$ 209	$ 293
2021	44	11	55
2022	36	—	36
2023	36	—	36
2024	9	—	9
Total minimum lease payments	209	220	429
Less amount representing interest	34	17	51
Present value of net minimum obligations	175	203	378
Less current obligation under finance and operating leases	68	193	261
Long-term obligation under finance and operating leases	$ 107	$ 10	$ 117

Other supplemental information related to operating and finance leases of the Company's continuing operations was as follows at December 31, 2019:

Weighted average remaining lease term (in years):	
Operating leases	0.99
Finance leases	3.35
Weighted average discount rate:	
Operating leases	7.98 %
Finance leases	8.21 %

Note 8. Financing

Convertible Note

On July 17, 2018, the Company issued a convertible promissory note to Iliad Research and Trading, L.P. (“Iliad”), with an initial principal amount of $2.6 million (“Convertible Note”). The Company received consideration of $2.5 million, reflecting an original issue discount of $100 thousand and expenses payable by the Company of $25 thousand. The Convertible Note had an 18-month term and carried interest at 10% per annum. The note was convertible into shares of the Company’s common stock at a conversion price of $24.00 per share upon 5 trading days’ notice, subject to certain adjustments (standard dilution) and ownership limitations specified in the Convertible Note and resulted in a beneficial conversion feature discount of $328 thousand at inception.

Iliad could redeem any portion of the Convertible Note, at any time after six months from the issue date upon 5 trading days’ notice, subject to a maximum monthly redemption amount of $650 thousand, with the Company having the option to pay such redemptions in cash, the Company’s common stock at the Conversion Price, or by a combination thereof, subject to certain conditions, including that the stock price is $30.00 per share or higher. At maturity, the Company could pay the outstanding balance in cash, the Company’s common stock at the Conversion Price, or by a combination thereof, subject to certain conditions. The

Convertible Note provided that in the event of default, the lender may, at its option, elect to increase the outstanding balance applying the default effect (defined as outstanding balance at date of default multiplied by 15% plus outstanding amount) by providing written notice to the Company. In addition, the interest rate increases to 22% upon default. The default effect and default interest rate provisions qualified as embedded derivatives with an estimated fair value of $55 thousand at December 31, 2018.

During the first quarter of 2019, the Company entered into a standstill agreement with Iliad, which among other things, provided that Iliad would not seek to redeem any portion of the Convertible Note prior to April 15, 2019 and, as consideration for the standstill, increased the outstanding balance of the note by $202 thousand. In May 2019, Iliad agreed to a second standstill until May 31, 2019. As consideration, the conversion price was reduced to $6.82 for $1.3 million of the balance of the Convertible Note; the remainder was still convertible at $24.00. The reduction in the conversion price increased the fair value of the embedded conversion option by $547 thousand. The future cash flows of the Convertible Note changed by more than 10% as a result of the second standstill, so the Company amortized the remaining debt discount and debt issuance costs of $37 thousand, resulting in a loss on debt extinguishment of $584 thousand during the year ended December 31, 2019, of which $328 thousand was allocated to discontinuing operations. Loss on debt extinguishment allocated to continuing operations was recorded in interest expense.

As of June 20, 2019, the Company was in default on the Convertible Note. The Convertible Note began accruing interest at the default rate and the outstanding balance was increased by the default effect ($409 thousand) upon the notice of default.

In May 2019, Iliad converted $350 thousand of the Convertible Note into an aggregate of 51 thousand shares of the Company's common stock at a conversion price of $6.82 per share. During the year ended December 31, 2019, the Company issued 174 thousand shares of common stock to Iliad in exchange for the return of $612 thousand of principal amounts due under the Convertible Note using the exchange date fair market value of the Company's common stock. In October 2019, the Convertible Note was settled for $2.7 million, in cash, including accrued interest of $439 thousand. Of this settlement, $1.3 million was paid directly by Atlas Sciences, LLC ("Atlas Sciences") through the issuance of a new note payable to Atlas Sciences described below.

The Convertible Note was the general unsecured obligation of the Company. At December 31, 2019, the Convertible Note had a balance of $0. At December 31, 2018, the Convertible Note had a balance of $2.5 million, net of discounts and unamortized debt issuance costs of $136 thousand and $8 thousand, respectively. The effective interest rate during the years ended December 31, 2019 and 2018, was 70% and 40%. During the years ended December 31, 2019 and 2018, the Company incurred $420 thousand and $347 thousand, respectively, of contractual interest and amortization of the beneficial conversion feature. In addition, the Company incurred $40 thousand of amortization of other debt discounts and issuance costs, $202 thousand of standstill fees, $409 thousand of default penalties, and $547 thousand of additional cost related to reducing the conversion price on a portion of the debt during the year ended December 31, 2019. The Company incurred $85 thousand of amortization of other debt discounts and issuance costs during the year ended December 31, 2018.

Advance from NovellusDx, Ltd.

On September 18, 2018, the Company entered into an agreement and plan of merger (“Merger Agreement”) with NovellusDx, Ltd. (“NDX”). In connection with signing the Merger Agreement, NDX loaned the Company $1.5 million. Interest originally accrued on the outstanding balance at 10.75% per annum (“Advance from NDX”), and the advance was to mature upon the earlier of March 31, 2019 or the date on which the Merger Agreement was terminated in accordance with its terms (or ninety days thereafter in the case of certain causes for termination). Upon certain events of default, NDX would be able to convert all, but not less than all, of the outstanding balance into shares of the Company’s common stock at a conversion price of $18.18 per share, which qualified as a contingent beneficial conversion feature that would only be recognized if a default occurred.

On December 15, 2018, the Company terminated the Merger Agreement. As a result, the Advance from NDX, plus interest thereon, became due and payable on March 15, 2019, and the interest rate was increased to 21% due to an event of default. As a result of the default, the Company recognized the beneficial conversion feature discount of $1.2 million. The default interest rate provision qualified as an embedded derivative with an estimated fair value of $31 thousand at December 31, 2018. At December 31, 2018, the principal balance of the Credit Agreement was $1.5 million, which is presented net of the unamortized beneficial conversion feature of $965 thousand in the Consolidated Balance Sheet. Prior to the NDX Settlement Agreement, defined in the next paragraph, the effective interest rate on the Advance from NDX was 81% and 69% during the years ended December 31, 2019 and 2018, respectively. The Company recognized $1.2 million and $261 thousand of interest and amortization of the beneficial conversion feature during the years ended December 31, 2019 and 2018, respectively. Of these amounts, $637 thousand and $147 thousand are included in discontinued operations.

On October 21, 2019, the Company and NDX entered into a settlement agreement (“NDX Settlement Agreement”). The NDX Settlement Agreement required the Company to pay $100 thousand on the date of execution and $1.0 million upon receipt of proceeds from the Excess Consideration Note. The $1.0 million payment was made in October 2019. As a result of such payment,

pursuant to the NDX Settlement Agreement, the balance of the Advance from NDX was reduced from $708 thousand to $450 thousand and each party released the other from all claims under the original credit agreement and the Merger Agreement. The remaining amount due is to be paid in nine monthly payments of $50 thousand commencing in November 2019. If the Company fails to make any of the required monthly payments, NDX may convert all, but not less than all, of the amounts then owing into a number of shares of the Company's common stock at a conversion price of $4.50 per share. The NDX Settlement Agreement adjusted the interest rate of the obligation to 0%. The Company recognized a gain on troubled debt restructuring relating to the NDX Settlement Agreement of $258 thousand during the year ended December 31, 2019. The gain was the difference between the book value of the debt at settlement and the future payments due.

The Advance from NDX is the general unsecured obligation of the Company. At December 31, 2019, the Advance from NDX had a principal balance of $350 thousand.

Note Payable, Net

On October 21, 2019, the Company issued an unsecured promissory note to Atlas Sciences, an affiliate of Iliad, for $1.3 million ("Note Payable"). The Company received consideration of $1.3 million, reflecting an original issue discount of $88 thousand and expenses payable by the Company of $10 thousand. The Note Payable has a 12-month term and bears interest at 10% per annum. The proceeds from the Note Payable were utilized to partially repay the Convertible Note. Atlas Sciences may redeem any portion of the note, at any time after six months from the issuance date upon three business days' notice, subject to a monthly maximum redemption amount of $300 thousand. The Company may prepay the Note Payable at any time without penalty. Upon the occurrence of an event of default, Atlas Sciences can elect to adjust the interest rate to 22% per annum and/or apply the default effect, which increases the outstanding balance of the Note Payable by 15% on the date of default. At December 31, 2019, the Note Payable had a principal balance of $1.3 million, which is presented net of discounts and unamortized debt issuance costs of $64 thousand and $7 thousand, respectively.

All of the Company's debt matures in 2020.

Note 9. Letter of Credit

The Company maintains a $350 thousand letter of credit in favor of its former landlord pursuant to the terms of the lease for its Rutherford facility. At December 31, 2019 and 2018, the letter of credit was fully secured by the restricted cash disclosed on the Company's Consolidated Balance Sheets. In addition, under the assignment of leases related to the Company's New Jersey headquarters, the Buyer became obligated to replace a $350 thousand letter of credit held by the New Jersey landlord and secured by the Company's cash collateral in August 2019; however, the letter of credit was not replaced until April 2020. The cash collateral was released on May 20, 2020.

Note 10. Fixed Assets

Fixed assets are summarized by major classifications as follows (in thousands):

	2019	2018
Equipment	**$ 1,000**	$ 842
Furniture and fixtures	**53**	52
	1,053	894
Less accumulated depreciation	**(495)**	(336)
Net fixed assets	**$ 558**	$ 558

Depreciation expense recognized during the years ended December 31, 2019 and 2018 was $159 thousand and $310 thousand, respectively.

The fixed assets in the table above include foreign currency translation adjustments that were de minimus during the years ended December 31, 2019 and 2018.

Note 11. Patents and Other Intangible Assets

Patents and other intangible assets consist of the following at December 31, 2019 and 2018:

	(in thousands) 2019	(in thousands) 2018	Weighted-Average Remaining Amortization Period
Patents	**$ 981**	$ 981	**3 years**
Customer list	**2,738**	2,738	**8 years**
Trade name	**477**	477	**8 years**
	4,196	4,196	
Less accumulated amortization	**(1,301)**	(847)	
Net patent and other intangible assets	**$ 2,895**	$ 3,349	

The customer list and trade name in the table above include foreign currency translation adjustments that were de minimus during the years ended December 31, 2019 and 2018.

Amortization expense recognized during the years ended December 31, 2019 and 2018 was $454 thousand and $491 thousand, respectively. Future amortization expense for patents and other intangible assets, is estimated as follows (in thousands):

2020	$ 465
2021	465
2022	424
2023	344
2024	337
Thereafter	860
Total	$ 2,895

Note 12. Income Taxes

Loss from continuing and discontinuing operations before income tax provision (benefit) consisted of the following (in thousands):

	For the Year Ended December 31	
	2019	2018
United States	**$ (5,619)**	$ (19,793)
Foreign	**(1,601)**	(580)
Total	**$ (7,220)**	$ (20,373)

The provision (benefit) for income taxes from continuing and discontinuing operations consisted of the following (in thousands):

	For the Year Ended December 31	
	2019	2018
Current:		
State	**$ (512)**	$ —
Deferred:		
Federal	**$ 687**	$ (4,112)
State	**766**	12
Foreign	**(167)**	52
	1,286	(4,048)
Change in valuation allowance	**(1,286)**	4,048
Total deferred	**$ —**	$ —
Total	**$ (512)**	$ —

The provision (benefit) for income taxes from continuing and discontinuing operations for the years endedDecember 31, 2019 and 2018 differs from the approximate amount of income tax benefit determined by applying the U.S. federal income tax rate to pre-tax loss, due to the following:

	Year Ended December 31, 2019		Year Ended December 31, 2018	
	Amount (in thousands)	**% of Pretax Loss**	**Amount (in thousands)**	**% of Pretax Loss**
Income tax benefit at federal statutory rate	**$ (1,516)**	**21.0 %**	$ (4,278)	21.0 %
State tax provision, net of federal tax benefit	**223**	**(3.1)%**	226	(1.1)%
Tax credits	**136**	**(1.9)%**	(60)	0.3 %
Stock based compensation	**997**	**(13.8)%**	211	(1.0)%
Derivative warrants	**(30)**	**0.4 %**	(766)	3.7 %
Change in valuation allowance	**(1,286)**	**17.8 %**	4,048	(19.9)%
Goodwill impairment	**604**	**(8.4)%**	—	— %
Foreign operations	**109**	**(1.5)%**	508	(2.5)%
Gain on sale of businesses	**246**	**(3.4)%**	—	— %
Other	**5**	**— %**	111	(0.5)%
Income tax (benefit) provision	**$ (512)**	**7.1 %**	$ —	— %

On April 4, 2019, the Company sold $11.6 million of gross State of New Jersey NOL's relating to the 2017 tax year as well as$72 thousand of state research and development tax credits, resulting in the receipt of $512 thousand, net of expenses.

Approximate deferred taxes consist of the following components as of December 31, 2019 and 2018 (in thousands):

	2019	2018
Deferred tax assets:		
Net operating loss carryforwards	**$ 26,317**	$ 25,999
Accruals and reserves	**3,014**	4,328
Stock based compensation	**75**	1,020
Research and development tax credits	**1,800**	1,936
Derivative warrant liability	**17**	17
Investment in joint venture	**161**	162
Other	**6**	6
Total deferred tax assets	**31,390**	33,468
Less valuation allowance	**(30,497)**	(31,783)
Net deferred tax assets	**893**	1,685
Deferred tax liabilities		
Fixed assets	**(132)**	(352)
Goodwill and intangible assets	**(761)**	(1,333)
Net deferred taxes	**$ —**	$ —

Due to a history of losses the Company has generated since inception, the Company believes it is more-likely-than-not that all of the deferred tax assets will not be realized as of December 31, 2019 and 2018. Therefore, the Company has recorded a full valuation allowance on its deferred tax assets. As a result of the Tax Cuts and Jobs Act, the federal net operating losses incurred after 2017 will have an indefinite carryforward. At December 31, 2019, the Company has net operating loss carryforwards for federal income tax purposes of $117.5 million, of which $98.9 million could expire over time, beginning in 2027, if not used. At December 31, 2019, the Company has $2.7 million of Australian net operating loss carryforwards and $18.2 million of New Jersey net operating loss carryforwards. At December 31, 2019, the Company also had $1.8 million of federal research and development tax credits, which expire in varying amounts between the years 2020 and 2038. Utilization of these carryforwards is subject to limitation due to ownership changes that may delay the utilization of a portion of the carryforwards.

Note 13. Capital Stock

2019 Offerings

On January 9, 2019, the Company entered into an underwriting agreement with H.C. Wainwright, relating to an underwritten public offering of 445 thousand shares of the Company's common stock for $6.75 per share. The Company received proceeds from the offering of $2.4 million, net of expenses and discounts of $563 thousand.

On January 26, 2019, the Company issued 507 thousand shares of common stock at a public offering price of $6.90 per share. The Company received proceeds from the offering of $3.0 million, net of expenses and discounts of $525 thousand.

Conversions and Exchanges of Debt into Common Stock

In May 2019, Iliad converted $350 thousand of the Convertible Note into an aggregate of 51 thousand shares of the Company's common stock at a conversion price of $6.82 per share.

During the year ended December 31, 2019, the Company issued 174 thousand shares of common stock to Iliad in exchange for the return of $612 thousand of principal amounts due under the Convertible Note using the exchange date fair market value of the Company's common stock.

Stock Issued to Vendor

On December 4, 2019, the Company issued 5 thousand shares of common stock to a vendor at a value of $7.86 per common share, using the exchange date fair market value of the Company's common stock.

Preferred Stock

The Company is currently authorized to issue up to 9.8 million shares of preferred stock. As of December 31, 2019 and 2018, no shares of preferred stock were outstanding.

Note 14. Stock-Based Compensation

The Company has two equity incentive plans: the 2008 Stock Option Plan (the “2008 Plan”) and the 2011 Equity Incentive Plan (the “2011 Plan”, and together with the 2008 Plan, the “Stock Option Plans”). The Stock Option Plans are meant to provide additional incentive to officers, employees and consultants to remain in the Company's employment. Options granted are generally exercisable for up to 10 years.

The 2011 Plan reserved 105 thousand shares of common stock for issuance, under several types of equity awards including stock options, stock appreciation rights, restricted stock awards and other awards defined in the 2011 Plan. At December 31, 2019, 33 thousand shares remain available for future awards under the 2011 Plan.

The 2008 Plan reserved 18 thousand shares of common stock for issuance. Effective April 9, 2018, the Company is no longer able to issue options from the 2008 Plan. Prior to April 9, 2018, the Company was authorized to issue incentive stock options or non-statutory stock options to eligible participants, as defined in the 2008 Plan.

At December 31, 2019, the Company has 1 thousand options outstanding that were issued outside of the Stock Option Plans. As of December 31, 2019, no stock appreciation rights and 12 thousand shares of restricted stock had been awarded under the Stock Option Plans.

On July 23, 2019, the Company issued 3 thousand stock options to each of its five non-employee directors. The options will vest in equal monthly installments over twelve months and have an exercise price of $4.50 per share. On January 2, 2020, the Company issued an aggregate of 20 thousand stock options to two executives, as discussed in Note 20. The options will vest in equal monthly installments over twelve months and have an exercise price of $5.53 per share and a grant date fair value of $4.45 per share.

A summary of employee and non-employee stock option activity for the years ended December 31, 2019 and 2018 for both continuing and discontinuing employees is as follows:

	Options Outstanding			
	Number of Shares (in thousands)	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Outstanding January 1, 2018	95	$ 210.00	6.96	$ 4
Granted	29	25.20		
Cancelled or expired	(24)	142.20		
Outstanding December 31, 2018	100	173.10	5.70	$ —
Granted	20	5.89		
Cancelled or expired	(56)	182.37		
Outstanding December 31, 2019	64	$ 113.63	7.48	$ 24
Exercisable, December 31, 2019	40	$ 170.52	6.63	$ 10

Aggregate intrinsic value represents the difference between the fair value of the Company's common stock and the exercise price of outstanding, in-the-money options. During the years ended December 31, 2019 and 2018, no options were exercised.

As of December 31, 2019, total unrecognized compensation cost related to non-vested stock options granted to employees was $177 thousand for continuing operations, which the Company expects to recognize over the next 2.18 years.

The fair value of options granted to employees is estimated on the grant date using the Black-Scholes option valuation model. This valuation model requires the Company to make assumptions and judgments about the variables used in the calculation, including the expected term (the period of time that the options granted are expected to be outstanding), the volatility of the Company's common stock, a risk-free interest rate, and expected dividends. The Company records forfeitures of unvested stock options when they occur. No compensation cost is recorded for options that do not vest. Due to significant changes in the Company's business, the Company used the simplified calculation of expected life described in the SEC's Staff Accounting Bulletin No. 107, Share-Based Payment, and volatility is based on the historical volatility of the Company's common stock. The risk-free rate is based on the U.S. Treasury yield curve in effect at the time of grant for periods corresponding with the expected life of the option. The Company uses an expected dividend yield of zero, as it does not anticipate paying any dividends in the foreseeable future.

The following table presents the weighted-average assumptions used to estimate the fair value of options granted to continuing and discontinuing employees during the periods presented:

	Year Ended December 31,	
	2019	2018
Volatility	**93.86%**	77.79%
Risk free interest rate	**1.95%**	2.88%
Dividend yield	**—**	—
Term (years)	**5.44**	6.45
Weighted-average fair value of options granted during the period	**$ 4.32**	$ 17.70

Restricted stock awards have been granted to employees, directors and consultants as compensation for services. At December 31, 2019, there was no unrecognized compensation cost related to non-vested restricted stock.

The following table summarizes the activities for the Company's non-vested restricted stock awards for the years ended December 31, 2019 and 2018 for both continuing and discontinuing employees:

	Non-vested Restricted Stock Awards	
	Number of Shares (in thousands)	Weighted-Average Grant Date Fair Value
Non-vested at January 1, 2018	3	$ 126.30
Vested	(1)	100.80
Forfeited/cancelled	(1)	203.10
Non-vested at December 31, 2018	1	102.82
Vested	(1)	102.82
Non-vested at December 31, 2019	—	$ —

The TSA with Buyer described in Note 1 included the continued employment of individuals who will transfer to Buyer no later than six months from the closing of the transaction. Stock-based compensation related to these employees is included in discontinuing operations. The following table presents the effects of stock-based compensation related to stock option and restricted stock awards to employees and non-employees on the Company's continuing operations included in its Consolidated Statements of Operations and Other Comprehensive Loss during the periods presented (in thousands):

	Year Ended December 31,	
	2019	2018
Cost of revenues	**$ 16**	$ 16
General and administrative	**247**	514
Total stock-based compensation related to continuing operations	**$ 263**	$ 530

During the years ended December 31, 2019 and 2018, the Company recognized $107 thousand and $391 thousand, respectively, of stock-based compensation related to discontinuing operations.

Note 15. Warrants

During 2016 and 2017, the Company issued warrants containing a contingent net cash settlement feature (identified as 2016 Offerings and 2017 Offering, respectively, under the heading “derivative” in the table below). These warrants are recorded as a warrant liability, and all subsequent changes in their fair value are recognized in earnings until they are exercised, amended or expired. During 2017, the Company also issued warrants that were subject to a 20% reduction if the Company achieved certain financial milestones as part of its debt refinancing in March 2017 (identified as 2017 Debt in the table below). These warrants were recorded as a warrant liability, and all subsequent changes in their fair value were recognized in earnings until April 2, 2018, when the number of shares of common stock issuable upon exercise of the warrants became fixed. On June 30, 2018, the 2017 Debt warrants were modified to adjust the exercise price from $84.60 per share to $27.60 per share.

On June 8, 2019, warrants to purchase 123 thousand shares of the Company's common stock, referred to below as the 2017 Offering, expired.

In January 2019, the Company issued warrants to purchase31 thousand and 36 thousand shares of its common stock a $7.43 and $7.59 per share, respectively, in conjunction with its 2019 Offerings described in Note 1.

The following table summarizes the warrant activity for the years endingDecember 31, 2019 and 2018 (in thousands except exercise price):

Issued With / For	Exercise Price		Warrants Outstanding January 1, 2018	Transfer Between Derivative Warrants and Non-Derivative Warrants	Warrants Outstanding December 31, 2018	2019 Warrants Issued	2019 Warrants Expired	Warrants Outstanding December 31, 2019
Non-Derivative Warrants:								
Financing	$ 300.00		8	—	8	—	—	8
Financing	450.00		9	—	9	—	—	9
2015 Offering	150.00		115	—	115	—	—	115
2017 Debt	27.60	A	—	15	15	—	—	15
2019 Offering	7.43		—	—	—	31	—	31
2019 Offering	7.59		—	—	—	35	—	35
	115.54	C	132	15	147	66	—	213
Derivative Warrants:								
2016 Offerings	67.50	B	66	—	66	—		66
2017 Debt	27.60	A	15	(15)	—	—	—	—
2017 Offering	70.50	B	117	—	117	—	(117)	—
2017 Offering	75.00	B	6	—	6	—	(6)	—
	67.50	C	204	(15)	189	—	(123)	66
	$ 104.18	C	336	—	336	66	(123)	279

A These warrants were subject to fair value accounting until the number of shares issuable upon the exercise of the warrants became fixed on April 2, 2018. Effective June 30, 2018, the exercise price was reduced from $84.60 per share to $27.60 per share. See Note 16.

B These warrants are subject to fair value accounting and contain a contingent net cash settlement feature. See Note 16.

C Weighted average exercise prices are as of December 31, 2019.

Note 16. Fair Value of Warrants

The derivative warrants issued as part of the 2016 Offerings are valued using a probability-weighted Binomial model, while the derivative warrants issued as part of the 2017 Debt refinancing were valued using a Monte Carlo model. The derivative warrants issued in conjunction with the 2017 Offering were valued using a Black-Scholes model. The following tables summarize the assumptions used in computing the fair value of derivative warrants subject to fair value accounting at December 31, 2019 and 2018, and the fair value of derivative warrants reclassified to equity during the years then ended.

2016 Offerings	As of December 31, 2019	As of December 31, 2018
Exercise price	$ 67.50	$ 67.50
Expected life (years)	2.08	3.08
Expected volatility	150.69%	100.51%
Risk-free interest rate	1.58%	2.46%
Expected dividend yield	0.00%	0.00%

2017 Debt	Reclassified to Equity During the Year Ended December 31, 2018
Exercise price	$ 84.60
Expected life (years)	5.97
Expected volatility	73.40%
Risk-free interest rate	2.55%
Expected dividend yield	0.00%

2017 Offering	As of December 31, 2018
Exercise price	$ 70.80
Expected life (years)	0.44
Expected volatility	172.5%
Risk-free interest rate	2.56%
Expected dividend yield	0.00%

The Company stock price used in computing the fair value for warrants reclassified to equity during 2018 was $49.50. In determining the fair value of warrants outstanding at each reporting date, the Company stock price was $5.96 and $7.20 (the closing price on the NASDAQ Capital Market) at December 31, 2019 and 2018, respectively.

The following table summarizes the derivative warrant activity subject to fair value accounting for the years ended December 31, 2019 and 2018 (in thousands):

	Issued with 2016 Offerings	Issued with 2017 Debt	Issued with 2017 Offering	Total
Fair value of warrants outstanding as of January 1, 2018	$ 1,929	$ 501	$ 1,973	$ 4,403
Fair value of warrants reclassified to equity	—	(423)	—	(423)
Change in fair value of warrants	(1,704)	(78)	(1,950)	(3,732)
Fair value of warrants outstanding as of December 31, 2018	225	—	23	248
Change in fair value of warrants	(47)	—	(23)	(70)
Fair value of warrants outstanding as of December 31, 2019	$ 178	$ —	$ —	$ 178

Note 17. Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. The Fair Value Measurements and Disclosures Topic of the FASB Accounting Standards Codification requires the use of valuation techniques that are consistent with the market approach, the income approach and/or the cost approach. Inputs to valuation techniques refer to the assumptions that market participants would use in pricing the asset or liability. Inputs may be observable, meaning those that reflect the assumptions market participants would use in pricing the asset or liability developed based on market data obtained from independent sources, or unobservable, meaning those that reflect the Company's own assumptions about the assumptions market participants would use in pricing the asset or liability developed based on the best information available in the circumstances. In that regard, the Topic establishes a fair value hierarchy for valuation inputs that give the highest priority to quoted prices in active markets for identical assets or liabilities and the lowest priority to unobservable inputs.

The fair value hierarchy is as follows:

Level 1: Quoted prices (unadjusted) for identical assets or liabilities in active markets that the Company has the ability to access as of the measurement date.

Level 2: Significant other observable inputs other than Level 1 prices such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data.

Level 3: Significant unobservable inputs that reflect the Company's own assumptions about the assumptions that market participants would use in pricing an asset or liability.

The following table summarizes the financial assets and liabilities measured at fair value on a recurring basis segregated by the level of valuation inputs within the fair value hierarchy utilized to measure fair value (in thousands):

	2019			
	Total	**Quoted Prices in Active Markets for Identical Assets (Level 1)**	**Significant Other Observable Inputs (Level 2)**	**Significant Unobservable Inputs (Level 3)**
Assets:				
Earn-Out from siParadigm	**$ 1,103**	**$ —**	**$ —**	**$ 1,103**
	$ 1,103	**$ —**	**$ —**	**$ 1,103**
Liabilities:				
Warrant liability	**$ 178**	**$ —**	**$ —**	**$ 178**
Notes payable	**16**	**—**	**—**	**16**
	$ 194	**$ —**	**$ —**	**$ 194**

	2018			
	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Liabilities:				
Warrant liability	$ 248	$ —	$ —	$ 248
Notes payable	20	—	—	20
Other derivatives	86	—	—	86
	$ 354	$ —	$ —	$ 354

At December 31, 2019 and 2018, the warrant liability consists of stock warrants issued as part of the 2016 Offerings that contain contingent redemption features. At December 31, 2018, the warrant liability also included warrants issued as part of the 2017 Offering that contained contingent redemption features until they expired in June 2019. In accordance with derivative accounting for warrants, the Company calculated the fair value of warrants and the assumptions used are described in Note 16, "Fair Value of Warrants." Realized and unrealized gains and losses related to the change in fair value of the warrant liability are included in other income (expense) on the Consolidated Statements of Operations and Other Comprehensive Loss.

At December 31, 2019 and 2018, the Company had a note payable to VenturEast from a prior acquisition. The ultimate repayment of the note will be the value of 8 thousand shares of common stock at the time of payment. The value of the note payable to VenturEast was determined using the fair value of the Company's common stock at the reporting date. During the years ended December 31, 2019 and 2018, the Company recognized gains of $4 thousand and $136 thousand, respectively, due to the changes in value of the note. Realized and unrealized gains and losses related to the VenturEast note are included in other income (expense) on the Consolidated Statements of Operations and Other Comprehensive Loss. In January 2020, the Company entered into a settlement agreement with VenturEast, which is described in Note 21.

At December 31, 2019, the Company had an earn-out receivable from siParadigm that is based on tests performed by siParadigm for the Company's former Clinical Business customers between July 5, 2019 and July 4, 2020, as discussed in Note 1. The value of the earn-out is based on actual tests performed through December 31, 2019 and the Company's estimate of tests to be performed through the remainder of the earn-out period.

The following table summarizes the activity of the notes payable to VenturEast, the Earn-Out from siParadigm, and derivative warrants, which were measured at fair value using Level 3 inputs (in thousands):

	Assets	Liabilities		
	Earn-Out from siParadigm	Note Payable to VenturEast	Warrant Liability	Other Derivatives
Fair value at January 1, 2018	$ —	$ 156	$ 4,403	$ —
Change in fair value	—	(136)	(3,732)	—
Fair value of warrants reclassified to equity	—	—	(423)	—
Fair value of certain default provisions	—	—	—	86
Fair value at December 31, 2018	—	20	248	86
Fair value at issuance	2,376	—	—	—
Receipts received during the period	(338)	—	—	—
Fair value of certain default provisions	—	—	—	—
Change in fair value	(935)	(4)	(70)	(86)
Fair value at December 31, 2019	$ 1,103	$ 16	$ 178	$ —

Note 18. Contingencies

On April 5, 2018 and April 12, 2018, purported stockholders of the Company filed nearly identical putative class action lawsuits in the U.S. District Court for the District of New Jersey, against the Company, Panna L. Sharma, John A. Roberts, and Igor Gitelman,

captioned Ben Phetteplace v. Cancer Genetics, Inc. et al., No. 2:18-cv-05612 and Ruo Fen Zhang v. Cancer Genetics, Inc. et al., No. 2:18-06353, respectively. The complaints alleged violations of Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 and SEC Rule 10b-5 based on allegedly false and misleading statements and omissions regarding the Company's business, operational, and financial results. The lawsuits sought, among other things, unspecified compensatory damages in connection with purchases of the Company's stock between March 23, 2017 and April 2, 2018, as well as interest, attorneys' fees, and costs. On August 28, 2018, the Court consolidated the two actions in one action captioned In re Cancer Genetics, Inc. Securities Litigation (the "Securities Litigation") and appointed shareholder Randy Clark as the lead plaintiff. On October 30, 2018, the lead plaintiff filed an amended complaint, adding Edward Sitar as a defendant and seeking, among other things, compensatory damages in connection with purchases of CGI stock between March 10, 2016 and April 2, 2018. On December 31, 2018, Defendants filed a motion to dismiss the amended complaint for failure to state a claim. The Court granted the defendants' motion to dismiss during the oral argument and on February 25, 2020, the Court issued a written order dismissing the case with prejudice. The Lead Plaintiff has not appealed the dismissal.

In addition, on June 1, 2018, September 20, 2018, and September 25, 2018, purported stockholders of the Company filed nearly identical derivative lawsuits on behalf of the Company in the U.S. District Court for the District of New Jersey against the Company (as a nominal defendant) and current and former members of the Company's Board of Directors and current and former officers of the Company. The three cases are captioned: Bell v. Sharma et al., No. 2:18-cv-10009-CCC-MF, McNeece v. Pappajohn et al., No. 2:18-cv-14093, and Workman v. Pappajohn, et al., No. 2:18-cv-14259 (the "Derivative Litigation"). The complaints allege claims for breach of fiduciary duty, violations of Section 14(a) of the Securities Exchange Act of 1934 (premised upon alleged omissions in the Company's 2017 proxy statement), and unjust enrichment, and allege that the individual defendants failed to implement and maintain adequate controls, which resulted in ineffective disclosure controls and procedures, and conspired to conceal this alleged failure. The lawsuits seek, among other things, damages and/or restitution to the Company, appropriate equitable relief to remedy the alleged breaches of fiduciary duty, and attorneys' fees and costs. On November 9, 2018, the Court in the Bell v. Sharma action entered a stipulation filed by the parties staying the Bell action until the Securities Litigation is dismissed, with prejudice, and all appeals have been exhausted; or the defendants' motion to dismiss in the Securities Litigation is denied in whole or in part; or either of the parties in the Bell action gives 30 days' notice that they no longer consent to the stay. On December 10, 2018, the parties in the McNeece action filed a stipulation that is substantially identical to the Bell stipulation. On February 1, 2019, the Court in the Workman action granted a stipulation that is substantially identical to the Bell stipulation. On May 15, 2020, the plaintiff's in the Workman action filed a notice of voluntary dismissal to the original action. The plaintiff's in the McNeece action sent an identical notice that they intend to file a similar notice of voluntary dismissal to their original action. Based upon the above dismissal of the securities class action litigation, the Company anticipates the plaintiffs in the remaining derivative lawsuit may voluntarily dismiss their action as well. The Company is unable to predict the ultimate outcome of the Derivative Litigation and therefore cannot estimate possible losses or ranges of losses, if any. The Company is expensing legal costs associated with the loss contingency as incurred.

Note 19. Joint Venture Agreement

In November 2011, the Company entered into an affiliation agreement with the Mayo Foundation for Medical Education and Research ("Mayo"), subsequently amended. Under the agreement, the Company formed a joint venture with Mayo in May 2013 to focus on developing oncology diagnostic services and tests utilizing next generation sequencing. The joint venture is a limited liability company, with each party initially holding fifty percent of the issued and outstanding membership interests of the new entity (the "JV"). In exchange for its membership interest in the JV, the Company made an initial capital contribution of $1.0 million in October 2013. In addition, the Company issued 10 thousand shares of its common stock to Mayo pursuant to the affiliation agreement and recorded an expense of $175 thousand. The Company also recorded additional expense of $231 thousand during the fourth quarter of 2013 related to shares issued to Mayo in November of 2011 as the JV achieved certain performance milestones. In the third quarter of 2014 the Company made an additional $1.0 million capital contribution.

The agreement also requires aggregate total capital contributions by the Company of up to an additional $4.0 million. The timing of the remaining installments was subject to the JV's achievement of certain operational milestones agreed upon by the board of governors of the JV. In exchange for its membership interest, Mayo's capital contribution will take the form of cash, staff, services, hardware and software resources, laboratory space and instrumentation, the fair market value of which will be equal to $6.0 million. Mayo's continued contribution will also be conditioned upon the JV's achievement of certain milestones. During 2018, the Company received a cash distribution from the JV of $150 thousand. The JV was dissolved effective February 14, 2020, and the dissolution terms include an estimated final cash distribution from the JV to the Company of $89 thousand, to be paid as soon as practicable. The Company received the first payment of $36 thousand in April 2020, which is consistent with the dissolution terms.

The joint venture is considered a variable interest entity under ASC 810-10, but the Company is not the primary beneficiary as it does not have the power to direct the activities of the joint venture that most significantly impact its performance. The Company's

evaluation of ability to impact performance is based on its equal board membership and voting rights and day to day management functions which are performed by the Mayo personnel.

Note 20. Related Party Transactions

The Company had a consulting agreement with Equity Dynamics, Inc. ("EDI"), an entity controlled by John Pappajohn, the former Chairman of the Board of Directors, effective April 1, 2014 through August 31, 2018, pursuant to which EDI received a monthly fee of $10 thousand. The Company expensed $80 thousand for the year ended December 31, 2018 related to this agreement. At December 31, 2019 and 2018, the Company had accrued liabilities of $0 and $70 thousand, respectively, for unpaid fees to EDI.

At December 31, 2019 and 2018, John Pappajohn had 18 thousand warrants outstanding to purchase shares of the Company's common stock at a weighted-average exercise price of $280.14 per share.

Various executives, directors and former directors purchased shares as part of the 2019 Offerings at the public offering price. On January 14, 2019, John Pappajohn, John Roberts, the Company's President and Chief Executive Officer, and Geoffrey Harris, a Director, purchased 33 thousand shares, 3 thousand shares and 3 thousand shares, respectively, at the public offering price of $6.75 per share. On January 31, 2019, John Pappajohn, John Roberts, Edmund Cannon, a Director, and M. Glenn Miles, the Company's Chief Financial Officer, purchased 33 thousand shares, 6 thousand shares, 1 thousand shares and 5 thousand shares, respectively, at the public offering price of $6.90 per share.

On July 23, 2019, the Company issued 3 thousand stock options to each of its five non-employee directors. The options will vest in equal monthly installments over the next twelve months and have an exercise price of $4.50 per share. The directors have waived their rights to any claim for past due director compensation of $263 thousand as a condition of these option grants.

On January 2, 2020, the Company issued 10 thousand stock options each to M. Glenn Miles and Ralf Brandt, the Company's President of Discovery & Early Development Services. The options will vest in equal monthly installments over twelve months and have an exercise price of $5.53 per share.

Note 21. Subsequent Events

Settlement Agreement with VenturEast

In January 2020, the Company entered into a Settlement Agreement with VenturEast, discussed in Note 17, to satisfy the Company's outstanding liability, which resulted in the Company issuing 3 thousand restricted shares of common stock, and making two lump sum payments of $50 thousand each for a total cash settlement of $100 thousand.

Dissolution of Joint Venture

The Company dissolved its joint venture with Mayo in February 2020, as discussed in Note 19, and the dissolution terms include an estimated final cash distribution from the JV to the Company of $89 thousand to be paid as soon as practicable. The Company received the first payment of $36 thousand in April 2020, which is consistent with dissolution terms.

Stock Option Grants

On January 2, 2020, the Company issued an aggregate of 20 thousand stock options to two executives, as discussed in Note 20. The options will vest in equal monthly installments over twelve months and have an exercise price of $5.53 per share and a grant date fair value of $4.45 per share.

Coronavirus (COVID-19) Pandemic

On March 11, 2020 the World Health Organization declared the novel strain of coronavirus ("COVID-19") a global pandemic and recommended containment and mitigation measures worldwide. In addition, as the Company is located in New Jersey, it is currently under a shelter-in-place mandate and many of its customers worldwide are similarly impacted. The global outbreak of the COVID-19 continues to rapidly evolve, and the extent to which the COVID-19 may impact the Company's business will depend on future developments, which are highly uncertain and cannot be predicted with confidence, such as the ultimate geographic spread of the disease, the duration of the outbreak, travel restrictions and social distancing in the United States and other countries, business closures or business disruptions, and the effectiveness of actions taken in the United States and other countries to contain and treat the disease. As a healthcare provider, the Company is still providing Discovery Services and has yet to experience a

slowdown in its project work, however, the future of many projects may be delayed. The Company continues to vigilantly monitor the situation with its primary focus on the health and safety of its employees and clients.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures.

The Company evaluated, under the supervision and with the participation of its principal executive officer and principal financial officer, the effectiveness of the design and operation of its disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities and Exchange Act of 1934 ("Exchange Act"), as amended) as of December 31, 2019, the end of the period covered by this report on Form 10-K. Based on this evaluation, the principal executive officer and the principal financial officer have concluded that the Company's disclosure controls and procedures were not effective at December 31, 2019. Disclosure controls and procedures are designed to ensure that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act (i) is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and were operating in an effective manner for the period covered by this report, and (ii) is accumulated and communicated to management, including, the principal executive officer and principal financial officer, or the person performing similar functions as appropriate, to allow timely decisions regarding required disclosures.

Management's Report on Internal Control Over Financial Reporting.

The Company's management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rule 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934.

The Company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles and includes those policies and procedures that:

- Pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company;
- Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of the Company's management and directors; and
- Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to risk that controls may become inadequate because of changes in conditions or because of declines in the degree of compliance with policies or procedures. . In making this assessment, the Company's management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") in *Internal Control-Integrated Framework (2013)*.

In connection with this assessment, the Company reports the material weakness, as described below, in internal control over financial reporting as of December 31, 2019. A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement for the annual or interim financial statements will not be prevented or detected on a timely basis. Because of the material weakness described below, and based on management's assessment, as of December 31, 2019, the Company's internal control over financial reporting was not effective:

Accounting for foreign currency exchange rate: The Company's accounting for foreign currency exchange rates requires that the Company make certain adjustments on its subsidiary ledgers to record certain transactions denominated in a foreign currency in transactions between its U.S. and Australian subsidiaries. Although management does perform overall review of its intercompany transactions between its foreign locations, the controls designed to identify material misstatements did not operate at a sufficient

level of precision to prevent or detect such errors in its determination of these transactions. Management has determined that this control deficiency constitutes a material weakness at December 31, 2019.

Accounting for the Company's investments: The Company's accounting for the fair value of an investment accounted for under the cost method requires the Company to adjust the fair value of such investments if there is an observable price change in the investment. The Company recorded an increase in the fair value of an investment accounted for under the cost method based on an "observable price change," however, the Company could not provide underlying supporting evidence of the price change during the 2019 audit procedures, and, therefore, had insufficient evidence to record an increase in the investment in accordance with generally accepted accounting principles.

Remediation plan and procedures: Management is committed to remediating the material weaknesses. The Company began the process of implementing changes to its internal control over financial reporting to remediate the control deficiencies that gave rise to the material weaknesses, including further improvements in processes and analyses that support the recording of foreign currency exchanges and the fair value of investments. In 2020, management plans to include additional journal entry review procedures to enhance its remediation efforts.

Changes in Internal Control over Financial Reporting.

By December 31, 2019, the Company's clinical services business had been sold to siParadigm, LLC. The Company's previously noted material weakness over the accounting for uncollectible clinical services revenue was remediated with this transaction.

Other than the previously disclosed material weaknesses, specifically identified for 2018 and 2019 above, there were no changes in the Company's internal control over financial reporting during the three months ended December 31, 2019 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Item 9B. Other Information.

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

Directors

The following table sets forth certain information about the current directors of the Company. Directors are elected to hold office until the next annual meeting of stockholders and until their successors are elected and qualified.

Directors	Age	Year First Became Director
Geoffrey Harris (Chairman of the Board)	58	2014
Edmund Cannon	75	2005
Raju S.K. Chaganti, Ph.D.	87	1999
Franklyn G. Prendergast, M.D., Ph.D.	75	2012
Howard McLeod	54	2014

Set forth below are brief biographical descriptions of the individuals currently serving as the Company's directors, based on information furnished to the Company by such individuals.

Geoffrey Harris

Geoffrey Harris is the chairman of the Company's Board and is a managing partner of c7 Advisors (a money management and healthcare advisory firm) since April 2014. From 2011 to 2014 he served as a managing director and co-head of the healthcare investment banking group at Cantor Fitzgerald, and from 2009-2011, he held a similar position at Gleacher & Company. Mr. Harris is also currently on the board of directors of Telemynd, Inc. (formerly known as MYnd Analytics), a data analysis company focused on improving mental health care; PointRight Inc., a privately-held software company; and MoleSafe, Inc., a privately-held company focused on the early detection of melanoma. Mr. Harris graduated from MIT’s Sloan School of Management with an MS in Finance Management.

Edmund Cannon

Edmund Cannon is a member of the Company's Board and is founder and President of the Clinical Research Center of Cape Cod since 2003, which specializes in finding institutional review board approved, consented specimens for the diagnostics and pharmaceutical industries, and in setting up studies to support FDA submissions for pharmaceutical and biotechnology companies. Previously, Mr. Cannon was a marketing and operations consultant for Franey Medical Labs. Mr. Cannon also formerly had the most national sales for Pharmacia Diagnostics Inc., and was a vice president and co-founder of Alletess, Inc. Mr. Canon has a degree from Boston State College and attended a Master’s program at Providence College.

Raju S.K. Chaganti, Ph.D., FACMG.

Dr. Chaganti is the Company's founder and has served on the Company's Board since the Company’s inception. Dr. Chaganti is an internationally recognized leader in cancer cytogenetics and molecular genetics. He is an inventor on 10 patents issued by the US patent office, 3 from Memorial Sloan-Kettering Cancer Center KCC and 7 from Cancer Genetics, Inc, all related to cancer gene discovery and cancer genetic analysis. Dr. Chaganti was the incumbent of the William E. Snee Chair at the Memorial Sloan-Kettering Cancer Center, where he was the faculty of the Department of Medicine and Cell Biology Program until he retired in July 2017, and is retired Emeritus Member and Professor. He is a Professor at the Gernster Sloan- Kettering Graduate School of Biomedical Sciences and at Weill-Cornell Graduate School of Medicinal Sciences, New York, New York. He was the chief of Memorial Sloan-Kettering Cancer Center’s cytogenetics service, which he established in 1976 as one of the earliest genetically based cancer diagnostic services in the country.

Dr. Chaganti received a Ph.D. in biology (genetics) from Harvard University Graduate School of Arts and Sciences and completed his post-doctoral training at the Medical Research Council of Great Britain. Additionally, he completed a sabbatical in the Department of Tumor Biology at Karolinska Institute Stockholm, focusing on experimental murine tumorigenesis and immunology. He has published extensively in genetics with a bibliography of over 380 entries comprising peer reviewed research articles, book chapters, and books. Dr. Chaganti is American Board of Medical Genetics certified in medical genetics, with a subspecialty in clinical cytogenetics. He is also a Founding Fellow of the American College of Medical Genetics.

Howard McLeod, Pharm.D.

Dr. McLeod is a member of the Company's Board and is the Medical Director, Precision Medicine for the Geriatric Oncology Consortium and a Professor at the USF Taneja College of Pharmacy. Until February 2020, he was Chair of the Department of Individualized Cancer Management and Medical Director of the DeBartolo Family Personalized Medicine Institute at the Moffitt Cancer Center and previously a Senior Member of the Moffitt Cancer Center's Division of Population Sciences. He also chaired the Department of Individualized Cancer Management at Moffitt. He joined Moffitt Cancer Center in September 2013. Prior to joining the Moffitt Cancer Center, Dr. McLeod was a Founding Director of the University of North Carolina Institute for Pharmacogenomics and Individualized Therapy since 2006. Dr. McLeod also held the prestigious title of Fred Eshelman Distinguished Professor at the UNC Eshelman School of Pharmacy from 2006 to 2013. Dr. McLeod has published over 500 peer-reviewed papers on pharmacogenomics, applied therapeutics and clinical pharmacology. He had served as Chief Scientific Advisor and a member of the board of directors of Gentris Corporation before its acquisition by the Company in July 2014.

Franklyn G. Prendergast, M.D., Ph.D.

Franklyn G. Prendergast, M.D., Ph.D., is a member of the Company's Board and also serves as the Emeritus Edmond and Marion Guggenheim Professor of Biochemistry and Molecular Biology and Emeritus Professor of Molecular Pharmacology and Experimental Therapeutics at Mayo Medical School and the director of the Mayo Clinic Center for Individualized Medicine. He has served in other positions of leadership at the Mayo Clinic since 1989, including on the Mayo Clinic Board of Trustees, from 1992 to 2009, and on the Mayo Clinic Board of Governors, from 1999 to 2006. He also previously held several other teaching positions at the Mayo Medical School since 1975. Dr. Prendergast has served for the National Institute of Health on numerous study section review groups; as a charter member of the Board of Advisors for the Division of Research Grants, now the Center for Scientific Review; the National Advisory General Medical Sciences Council; and the Board of Scientific Advisors of the National Cancer Institute. He held a Presidential Commission for service on the National Cancer Advisory Board. Dr. Prendergast also has served in numerous other advisory roles for the National Institute of Health and the National Research Council of the National Academy of Sciences, and he is a member of the board of directors of the Translational Genomics Research Institute and the Infectious Disease Research Institute (IDRI). Dr. Prendergast served on the board of directors of Eli Lilly & Co., and on its science and technology and public policy and compliance committees, from 1995 to 2017. He also served on the board of directors for DemeRx, Inc., a private, biotechnology drug development company from 2010 to 2012, and Ativa Medical Corporation, a private, diagnostic technology company from 2012 to 2015. Dr. Prendergast obtained his medical degree with honors from the University of West Indies and attended Oxford University as a Rhodes Scholar, earning an M.A. degree in physiology. He obtained his Ph.D. in Biochemistry at the University of Minnesota.

Executive Officers

The following table sets forth certain information about the current executive officers of the Company:

Executive Officers	Age	Position and Office
John A. Roberts	61	President and Chief Executive Officer
Ralf Brandt	53	President, Discovery & Early Development Sciences
Glenn Miles	54	Chief Financial Officer

Set forth below are brief biographical descriptions of the individuals currently serving as the Company's executive officers, based on information furnished to the Company by such individuals.

John A. Roberts

On April 30, 2018, Mr. Roberts was appointed as the Company's Chief Executive Officer and President. Prior to that, Mr. Roberts had been the Company's interim Chief Executive Officer since February 2, 2018. Mr. Roberts had previously served as the Company's Chief Operating Officer since July 11, 2016. Prior to joining us, from August 1, 2015 to June 30, 2016, Mr. Roberts served as the Chief Financial Officer for VirMedica, Inc., an innovative technology solutions company that provides an end-to-end platform that enables specialty drug manufacturers and pharmacies to optimize product commercialization and management. Prior to VirMedica, from August 1, 2011 to July 31, 2015, Mr. Roberts was the Chief Financial and Administrative Officer for AdvantEdge Healthcare Solutions, a global healthcare analytics and services organization. Prior to that, Mr. Roberts was the Chief Financial Officer and Treasurer for InfoLogix, Inc., a publicly-traded healthcare-centric mobile software and solutions provider.

He has also held CFO roles at leading public medical device and healthcare services firms including Clarient, Inc., a publicly-traded provider of diagnostic laboratory services and Daou Systems, Inc., a publicly-traded healthcare IT software development and services firm. In addition, he has held key senior executive roles with MEDecision, Inc., HealthOnline, Inc. and the Center for Health Information. Mr. Roberts earned a Bachelor of Science and a Master's degree in Business Administration from the University of Maine. He is a member of the Board of Directors and Immediate Past Chair for the Drug Information Association, a global neutral forum enabling drug developers and regulators access to education and collaboration. Mr. Roberts has also served on the Board of Directors of Cohere-Med Inc., a clinical analytics company, from February 2020 to present.

Ralf Brandt, PhD

Dr. Ralf Brandt, PhD was appointed as the Company's President of Discovery & Early Development Services following the Company's acquisition of vivoPharm Pty Ltd in August 2017. Dr. Brandt co-founded vivoPharm Pty Ltd in 2003 and served as its Chief Executive Officer and Managing Director until August 2017. Previously he was employed at research positions at the National Cancer Institute in Bethesda, MD, USA and at Schering AG, Germany. He led the Tumour Biology program at Novartis Pharma AG, Switzerland and established several transgenic mouse lines developing tumors under the control of oncogenes. He serves as a Member of the Scientific Advisory Board at Receptor Inc. in Toronto Canada. Dr. Brandt serves as a Member of Scientific Advisory Board at Propanc Health Group Corporation at Propanc Health Group Corporation. He received his Licence (BSc in Biochemistry and Animal Physiology) in 1986 and his PhD (in Biochemistry) in 1991 from the Martin-Luther University of Halle-Wittenberg, Germany.

Glenn Miles

Mr. Miles was appointed as the Company's Chief Financial Officer in November 2018. Prior to his appointment as Chief Financial Officer, Mr. Miles served the Company as a financial and accounting consultant since July 2018. Prior to joining the Company, Mr. Miles served as President and CFO of Catalytic Consulting LLC, a management advisory firm specializing in finance, accounting and operations, since 2015. From 2013 to 2015, Mr. Miles conducted research and engaged in thought leadership and panel discussions, focusing on finance in the healthcare and non-profit industries. From 2009 to 2013, Mr. Miles served as the Biopharma Controller for Developed Europe, Latin America and US Oncology at Pfizer. Prior to joining Pfizer, Mr. Miles served as Vice President - Global Expense Control and Analysis - Non-Personnel Expense at Lehman Brothers from 2006 to 2008. Prior to joining Lehman Brothers, Mr. Miles served in various finance and accounting roles with increasing responsibility at AT&T Mobility (formerly Cingular Wireless and BellSouth Mobility) from 1994 to 2006. Early in his career, Mr. Miles worked as an accountant at Grant Thornton (and a regional subscriber firm, Aldridge, Borden & Company, P.C.) from 1987 to 1994. Mr. Miles holds an MBA from Mercer University and a Bachelor of Science from the University of Alabama in Accounting. Mr. Miles is trained in Lean Six Sigma (Green Belt), is a CPA, and a member of FEI, AICPA, ACHE & HFMA.

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Securities Exchange Act of 1934, as amended, requires the Company's directors and executive, officers, and persons who are beneficial owners of more than 10% of a registered class of the Company's equity securities, to file reports of ownership and changes in ownership with the SEC. These persons are required by SEC regulations to furnish the Company with copies of all Section 16(a) forms they file.

Based solely upon the Company's review of copies of Forms 3, 4 and 5 furnished to the Company, the Company believes that all of its directors, executive officers and any other applicable stockholders timely filed all reports required by Section 16(a) of the Exchange Act during the fiscal year ended December 31, 2019, except that Form 4s for each of Howard McLeod, Edmund Cannon, Raju Chaganti, Geoffrey Harris and Franklyn Prendergast (filed August 21, 2019) with respect to option grants that took place on July 23, 2019 were not timely filed, and except as indicated above were filed on August 19, 2019.

Code of Business Conduct and Ethics

The Company has adopted a Code of Business Conduct and Ethics that applies to its directors, officers and employees. The purpose of the Code of Business Conduct and Ethics is to deter wrongdoing and to provide guidance to the Company's directors, officers and employees to help them recognize and deal with ethical issues, to provide mechanisms to report unethical or illegal conduct and to contribute positively to the Company's culture of honesty and accountability. The Company's Code of Business Conduct and Ethics is publicly available on the Company's website at www.cancergenetics.com. If the Company makes any substantive amendments to the Code of Business Conduct and Ethics or grants any waiver, including any implicit waiver from a provision of the Code of Business Conduct and Ethics to its directors or executive officers, the Company will disclose the nature of such amendments or waiver on its website or in a current report on Form 8-K.

Audit Committee

The Board has established an Audit Committee currently consisting of Mr. Harris, Mr. Cannon and Dr. Prendergast. The Audit Committee's primary functions are to oversee and review: the integrity of the Company's financial statements and other financial information furnished by the Company, the Company's compliance with legal and regulatory requirements, the Company's systems of internal accounting and financial controls, the independent auditor's engagement, qualifications, performance, compensation and independence, related party transactions, and compliance with the Company's Code of Business Conduct and Ethics.

Each member of the Audit Committee is "independent" as that term is defined under the applicable rules of the Securities and Exchange Commission (the 'SEC") and the applicable rules of The NASDAQ Stock Market. The Board has determined that each Audit Committee member has sufficient knowledge in financial and auditing matters to serve on the Committee. The Board determined that Mr. Harris is an "audit committee financial expert," as defined under the applicable rules of the SEC and the applicable rules of The NASDAQ Stock Market. The Company's Board has adopted an Audit Committee Charter, which is available for viewing at www.cancergenetics.com.

Item 11. Executive Compensation.

Summary Compensation Table

The following table shows the compensation awarded to or earned by each person serving as the Company's principal executive officer during fiscal year 2019, the Company's two most highly compensated executive officers who were serving as executive officers as of December 31, 2019 and up to two additional individuals for whom disclosure would have been provided but for the fact that such individuals were not serving as an executive officer as of December 31, 2019. The persons listed in the following table are referred to herein as the "named executive officers."

SUMMARY COMPENSATION TABLE

Name and Principal Position	Year	Salary ($)	Bonus ($)	Stock Awards ($) (1)	Option Awards ($) (1)	All Other Compensation ($)	Total ($)
John A. Roberts	2019	$ 267,885 (3)	$ —	$ —	$ —	$ 1,142 (4)	$ 269,027
Chief Executive Officer and President (2)	2018	$ 331,154	$ —	$ —	$ 220,754	$ 1,188 (4)	$ 553,096
Ralf Brandt	2019	$ 340,981	$ 98,490	$ —	$ —	$ —	$ 439,471
President, Discovery & Early Development Services	2018	$ 330,000	$ —	$ —	$ 92,964	$ —	$ 422,964
M. Glenn Miles	2019	$ 207,111 (6)	$ —	$ —	$ —	$ —	$ 207,111
Chief Financial Officer (5)	2018	$ 247,266	$ —	$ —	$ 20,992	$ —	$ 268,258

(1) Represents the aggregate grant date fair value for grants made in 2019 and 2018 computed in accordance with FASB ASC Topic 718. This calculation does not give effect to any estimate of forfeitures related to service-based vesting, but assumes that the executive will perform the requisite service for the award to vest in full. The assumptions used in valuing options are described in Note 14 to the Company's financial statements included in this Annual Report on Form 10-K.

(2) John A. Roberts was hired as the Company's Chief Operating Officer and Executive Vice President of Finance and Secretary on July 11, 2016. He was appointed Interim Chief Executive Officer effective February 2, 2018. He was appointed President and Chief Executive Officer on April 30, 2018.

(3) Represents Mr. Robert's gross salary of $350,000 less reimbursements of $82,115 received from Interpace Biosciences, Inc. ("IDXG") pursuant to the Transition Services Agreement ("TSA") and the disposal of the Company's biopharma services business ("Biopharma Disposal") discussed in Note 1 to the Company's financial statements included in this Annual Report on Form 10-K.

(4) Consists of group term life insurance benefits.

(5) M. Glenn Miles was appointed as the Company's Chief Financial Officer effective November 26, 2018. Mr. Miles' salary for 2018 includes $224,189 in fees charged by his consulting firm, Catalytic Consulting, LLC, for Financial Leadership services from July 2018 until his employment as Chief Financial Officer. His compensation under the consulting arrangement had been based on a blended weekly / hourly rate.

(6) Represents Mr. Miles' gross salary of $300,000 less reimbursements of $92,889 received from IDXG pursuant to the TSA and the Biopharma Disposal discussed in Note 1 to the Company's financial statements included in this Annual Report on Form 10-K.

Narrative Disclosure to Summary Compensation Table

Employment Agreements

The material terms of each named executive officer's employment agreement or arrangement are described below.

John A. Roberts

The Company entered into an employment agreement with Mr. Roberts effective as of July 11, 2016 ("Roberts Agreement"). The Roberts Agreement provides for, among other things: (i) an annual base salary of $300,000, or such greater amount as may be determined by the Board, (ii) eligibility for an annual cash bonus of up to 35% of base salary, and (iii) the following post-termination benefits: (a) any performance bonus plan, then in effect, pro rata for his period of actual employment during the year, payable at the regular bonus payment time but only if other employees are then paid their bonus amounts, and continuation of medical/dental, disability and life benefits for a period of six months following termination of employment pursuant to certain events, and (b) monthly payments equal to his base salary immediately prior to such termination for a period of six months in the event his employment is terminated without "cause" or Mr. Roberts resigns for "good reason" not in connection with a "change of control", (c) monthly payment equal to his base salary immediately prior to such termination for a period of twelve months in the event his employment is terminated due to illness, injury or disability or (d) a lump sum payment equal to twelve months of his then base salary plus an amount equal to the prior year bonus in the event his employment is terminated for any reason within twelve months following a change of control. The Roberts Agreement further provides that Mr. Roberts will not engage in competitive activity for a period of twelve months following termination of employment. The Roberts Agreement has an initial term of July 11, 2016 through July 10, 2017, and automatically renews for additional one-year terms.

On May 10, 2018, the Board of Directors increased Mr. Roberts' salary to $350,000 per year and approved an award of 11,666 options to purchase common stock to Mr. Roberts, with the vesting of such options subject to satisfaction of certain performance conditions consistent with the Company's current business plan and time vesting.

Ralf Brandt

The Company entered into an employment agreement with Dr. Brandt effective as of August 15, 2017 ("Brandt Agreement"). The Brandt Agreement provides for, among other things: (i) an annual base salary of $330,000, (ii) eligibility for an annual cash bonus of up to 30% of base salary, (iii) a one-time grant of a stock option to purchase 3,333 shares of common stock, vesting in equal quarterly increments over a two-year period beginning October 1, 2017, (iv) a one-time grant of 1,000 shares of restricted stock, vesting in equal annual increments over a three-year period beginning October 1, 2017, and the following post-termination benefits: (a) any bonus earned under any performance bonus plan then in effect, pro rata for his period of actual employment during the year, payable at the regular bonus payment time but only if other employees are then paid their bonus amounts, (b) monthly payments equal to his base salary immediately prior to such termination for a period of for three months in the event of his death or resignation other than for "good reason", (c) monthly payment equal to his base salary immediately prior to such termination for a period of four months in the event his employment is terminated due to illness, injury or disability, (d) monthly payments equal to his base salary immediately prior to such termination for the greater of six months or the remainder of his initial two-year employment period in the event his employment is terminated without "cause" or Dr. Brandt resigns for "good reason" not in connection with a "change of control", (e) a lump sum payment equal to his base salary immediately prior to such termination for the greater of six months or the remainder of his initial two-year employment period in the event his employment is terminated for any reason within twelve months following a "change of control". The Brandt Agreement further provides that Dr. Brandt will not engage in competitive activity for a period lasting the greater of six months or the remainder of his initial two-year employment period. The Brandt Agreement has an initial term of August 15, 2017 to August 14, 2019, and automatically renews for additional one-year terms.

Glenn Miles

The Company entered into an offer letter with Mr. Miles effective as of November 26, 2018 ("Miles Agreement"). The Miles Agreement provides for, among other things: (i) an annual base salary of $300,000, (ii) eligibility for an annual cash bonus of up to 30% of base salary, (iii) a one-time grant of a stock option to purchase 3,333 shares of common stock, vesting in equal monthly increments over a two-year period beginning November 26, 2019 and (iv) in the event the Company terminates Mr. Miles' employment at its option, other than due to any failure to substantially perform duties, 6 months of severance or separation pay.

The Miles Agreement has an initial term of November 26, 2018 to November 26, 2019, and automatically renews for additional one-year terms.

Outstanding Equity Awards at Fiscal Year End

The following table sets forth certain information, on an award-by-award basis, concerning unexercised options to purchase common stock, restricted shares of common stock and common stock that has not yet vested for each named executive officer and outstanding as of December 31, 2019.

OUTSTANDING EQUITY AWARDS AT FISCAL YEAR END - 2019

	Option Awards			
Name	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price ($)	Option Expiration Date
John A. Roberts	3,333 (1)	667 (1)	$ 60.00	7/11/2026
	708 (2)	292 (2)	$ 75.00	2/22/2027
Ralf Brandt	3,333 (3)	— (3)	$ 93.00	8/15/2027
	1,583 (4)	3,417 (4)	$ 26.70	5/10/2028
M. Glenn Miles	722 (5)	2,611 (5)	$ 9.00	11/26/2028

(1) 83 options vested on July 11, 2016. The remaining options vest in 15 equal quarterly installments of 250 options commencing October 11, 2016 and 167 options vesting on July 11, 2020.
(2) Options vest in 48 equal monthly installments of 21 options commencing one month after the grant date.
(3) Options vest in 8 equal quarterly installments of 417 options, commencing on October 1, 2017.
(4) 20% of the options vest one year after the grant date, with the remaining options vesting in equal monthly installments of 83 over the next 48 months.
(5) 20% of the options vest one year after the grant date, with the remaining options vesting in equal monthly installments of 56 over the next 48 months.

Director Compensation

Non-Employee Director Compensation Policy

In July 2019, the Company amended its director compensation policy. The Company's amended director compensation policy provides for the following cash compensation to its non-employee directors:

- each non-employee director receives a monthly retainer fee, paid in advance, of $2,500;
- the Company's chairman of the board receives an additional monthly retainer fee of $2,500;
- the chairman of the Company's audit committee receives a monthly retainer fee of $1,000;
- other audit committee members and compensation committee members receive a quarterly retainer fee of $1,000; and
- each non-employee director receives a meeting fee of $250 for each teleconference or $750 for each in-person meeting (exclusive of all travel related reimbursement).

This policy provides for the following equity compensation to the Company's non-employee directors:

- each non-employee director receives a one-time 3,333 share stock option at fair market value on the date of grant, vesting monthly in 12 equal installments over 12 months.

On July 23, 2019, in connection with the adoption of the amended director compensation policy, the Company granted each non-employee director options to purchase 3,333 shares of common stock.

The Company also reimburses non-employee directors for reasonable expenses incurred in connection with attending Board and committee meetings.

Except as set forth in the table below, the non-employee directors did not receive any cash or equity compensation during 2019:

DIRECTOR COMPENSATION

Name	Fees Earned or Paid in Cash ($)	Stock Awards ($) (1)	Option Awards ($) (1)	All Other Compensation ($)	Total ($)
Geoffrey Harris (2)	$ 36,750	$ —	$ 10,773	$ —	$ 47,523
Edmund Cannon (3)	$ 19,750	$ —	$ 10,773	$ —	$ 30,523
Raju S.K. Chaganti, Ph.D. (4)	$ 15,250	$ —	$ 10,773	$ —	$ 26,023
Howard McLeod (4)	$ 17,250	$ —	$ 10,773	$ —	$ 28,023
Franklyn G. Prendergast, M.D., Ph.D. (3)	$ 19,500	$ —	$ 10,773	$ —	$ 30,273

(1) Represents the aggregate grant date fair value for grants made in 2019 computed in accordance with FASB ASC Topic 718. This calculation does not give effect to any estimate of forfeitures related to service-based vesting, but assumes that the executive will perform the requisite service for the award to vest in full. The assumptions used in valuing options are described in Note 14 to the Company's financial statements included in this Annual Report on Form 10-K.

(2) Excludes $33,750 of past due compensation for the period October 1, 2018 through June 30, 2019 that was waived in July 2019.

(3) Excludes $30,000 of past due compensation for the period October 1, 2018 through June 30, 2019 that was waived in July 2019.

(4) Excludes $22,500 of past due compensation for the period October 1, 2018 through June 30, 2019 that was waived in July 2019.

Compensation Committee Interlocks and Insider Participation

The Compensation Committee of the Board of Directors is currently composed of the following two non-employee directors: Mr. Cannon and Dr. Prendergast. None of these Compensation Committee members was an officer or employee of the Company during the year. No Compensation Committee interlocks between the Company and another entity existed.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

Security Ownership of Certain Beneficial Owners and Management

The following table sets forth certain information as of April 23, 2020 with respect to the beneficial ownership of common stock of the Company by the following: (i) each of the Company's current directors; (ii) each of the named executive officers; (iii) all of the current executive officers and directors as a group; and (iv) each person known by the Company to own beneficially more than five percent (5%) of the outstanding shares of the Company's common stock.

For purposes of the following table, beneficial ownership is determined in accordance with the applicable SEC rules and the information is not necessarily indicative of beneficial ownership for any other purpose. Except as otherwise noted in the footnotes to the table, the Company believes that each person or entity named in the table has sole voting and investment power with respect to all shares of the Company's common stock shown as beneficially owned by that person or entity (or shares such power with his or her spouse). Under the SEC's rules, shares of the Company's common stock issuable under options that are exercisable on or within 60 days after April 23, 2020 ("Presently Exercisable Options") are deemed outstanding and therefore included in the number of shares reported as beneficially owned by a person or entity named in the table and are used to compute the percentage of the common stock beneficially owned by that person or entity. These shares are not, however, deemed outstanding for computing the percentage of the common stock beneficially owned by any other person or entity.

The percentage of the common stock beneficially owned by each person or entity named in the following table is based on 2,107,598 shares of common stock issued and outstanding as of April 23, 2020 plus any shares issuable upon exercise of Presently Exercisable Options held by such person or entity.

Name and Address of Beneficial Owner*	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned
Named Executive Officers, Executive Officers and Directors:		
Raju S.K. Chaganti, Ph.D.	23,990 (1)	1.1%
Edmund Cannon	6,672 (2)	**
Dr. Franklyn G. Prendergast, M.D., Ph.D.	5,293 (3)	**
Geoffrey Harris	8,359 (4)	**
Howard McLeod	4,560 (4)	**
John A. Roberts	14,565 (5)	**
Ralf Brandt	66,304 (6)	3.1%
M. Glenn Miles	10,166 (7)	**
All current executive officers and directors as a group (8 persons)	139,909	6.5%
5% Holders		
Renaissance Technologies, LLC	168,032 (8)	8.0%

(*) Unless otherwise indicated, the address is c/o Cancer Genetics, Inc., 201 Route 17 North, 2nd Floor, Rutherford, New Jersey, 07070.

(**) Less than 1%.

(1) Includes 11,811 shares of common stock underlying options held by Dr. Raju Chaganti exercisable on or before June 21, 2020. Also, includes 2,000 shares of common stock owned by Chaganti LLC, 3,260 shares of common stock owned by his wife, Dr. Seeta Chaganti, and 2,783 shares of common stock held by grantor retained annuity trusts of which Dr. Raju Chaganti and his wife are co-trustees and/or recipients. Excludes 555 shares of common stock underlying options held by Dr. Raju Chaganti not exercisable on or before June 21, 2020.

(2) Includes 4,611 shares of common stock underlying options exercisable on or before June 21, 2020. Excludes 555 shares of common stock underlying options not exercisable on or before June 21, 2020.

(3) Includes 4,877 shares of common stock underlying options exercisable on or before June 21, 2020. Excludes 555 shares of common stock underlying options not exercisable on or before June 21, 2020.

(4) Includes 4,111 shares of common stock underlying options exercisable on or before June 21, 2020. Excludes 555 shares of common stock underlying options not exercisable on or before June 21, 2020.

(5) Includes 4,645 shares of common stock underlying options exercisable on or before June 21, 2020. Excludes 354 shares of common stock underlying options not exercisable on or before June 21, 2020.

(6) Includes 55,722 shares of common stock owned through the Brandt Family Trust. Includes 9,582 shares of common stock underlying options exercisable on or before June 21, 2020. Excludes 8,750 shares of common stock underlying options that are not exercisable on or before June 21, 2020.

(7) Includes 5,166 shares of common stock underlying options exercisable on or before June 21, 2020. Excludes 8,167 shares of common stock underlying options not exercisable on or before June 21, 2020.

(8) Based on a Schedule 13G filed with the SEC on February 12, 2020, consists of 168,032 shares of common stock held by Renaissance Technologies, LLC, under its holding company Renaissance Technologies Holdings Corporation. The principal business address of the beneficial owners is 800 Third Avenue, New York, New York 10022.

Equity Compensation Plan Information

The following table provides information as of December 31, 2019 regarding shares of the Company's common stock that may be issued under the Company's existing equity compensation plans, including its 2008 Stock Option Plan (the “2008 Plan”) and its 2011 Equity Incentive Plan (the “2011 Plan”) as well as shares issued outside of these plans.

Plan Category	Equity Compensation Plan Information (a) Number of securities to be issued upon exercise of outstanding options and rights (1)	(b) Weighted average exercise price of outstanding options and rights	(c) Number of securities remaining available for future issuance under equity compensation plan (excluding securities referenced in column (a))	
Equity compensation plans approved by security holders (2)	63,160	$ 110.09	32,606	(3)
Equity compensation plans not approved by security holders (4)	1,200	$ 300.00	—	
Total	64,360	$ 113.63	32,606	

(1) Does not include any restricted stock as such shares are already reflected in the Company's outstanding shares.
(2) Consists of the 2008 Plan and the 2011 Plan.
(3) Includes securities available for future issuance under the 2011 Plan. Effective April 9, 2018, the Company is no longer able to issue options from the 2008 Plan.
(4) These options were issued to one of the Company's current board members in connection with consulting services.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

Other than compensation arrangements for named executive officers and directors, the Company describes below each transaction and series of similar transactions, since the beginning of fiscal year 2019, to which the Company were a party or will be a party, in which:

- the amounts involved exceeded or will exceed the lesser of $120,000 or one percent of the average of the smaller reporting company’s total assets at year-end for the last two completed fiscal years; and
- any of the Company's directors, nominees for director, executive officers or holders of more than 5% of the Company's common stock, or any member of the immediate family of the foregoing persons, had or will have a direct or indirect material interest.

Compensation arrangements for the Company's named executive officers and directors are described in the section entitled “Executive Compensation”.

2019 Offerings

On January 9, 2019, the Company entered into an underwriting agreement with H.C. Wainwright & Co., LLC (“H.C. Wainwright”), relating to an underwritten public offering of 445 thousand shares of its common stock for $6.75 per share. The Company received proceeds from the offering of $2.4 million, net of expenses and discounts of $563 thousand. The Company also issued warrants to purchase 31 thousand shares of common stock to H.C. Wainwright in connection with this offering. The warrants are exercisable for five years from the date of issuance at a per share price of $7.43. John Pappajohn, John Roberts, the Company's President and Chief Executive Officer, and Geoffrey Harris, a Director, purchased 33 thousand shares, 3 thousand shares and 3 thousand shares, respectively, at the public offering price of $6.75 per share.

On January 26, 2019, the Company issued 507 thousand shares of common stock at a public offering price of $6.90 per share. The Company received proceeds from the offering of $3.0 million, net of expenses and discounts of $525 thousand. The Company also issued warrants to purchase 36 thousand shares of common stock to the underwriter, H.C. Wainwright, in connection with this offering. The warrants are exercisable for five years from the date of issuance at a per share price of $7.59. John Pappajohn, John Roberts, Edmund Cannon, a Director, and M. Glenn Miles, the Company's Chief Financial Officer, purchased 33 thousand shares, 6 thousand shares, 1 thousand shares and 5 thousand shares, respectively, at the public offering price of $6.90 per share.

Indemnification Agreements

The Company has entered into indemnification agreements with each of its current directors and executive officers. These agreements will require the Company to indemnify these individuals to the fullest extent permitted under Delaware law against liabilities that may arise by reason of their service to the Company, and to advance expenses incurred as a result of any proceeding

against them as to which they could be indemnified. The Company also intends to enter into indemnification agreements with its future directors and executive officers.

Policies and Procedures for Related Party Transactions

The Company adopted a policy that its executive officers, directors, nominees for election as a director, beneficial owners of more than 5% of any class of the Company's common stock, any members of the immediate family of any of the foregoing persons and any firms, corporations or other entities in which any of the foregoing persons is employed or is a partner or principal or in a similar position or in which such person has a 5% or greater beneficial ownership interest (collectively, "related parties") are not permitted to enter into a transaction with the Company without the prior consent of the Company's board of directors acting through the audit committee or, in certain circumstances, the chairman of the audit committee. Any request for the Company to enter into a transaction with a related party, in which such related party would have a direct or indirect interest in the transaction, must first be presented to the Company's audit committee, or in certain circumstances the chairman of the Company's audit committee, for review, consideration and approval. In approving or rejecting any such proposal, the Company's audit committee is to consider the material facts of the transaction, including, but not limited to, whether the transaction is on terms no less favorable than terms generally available to an unaffiliated third party under the same or similar circumstances, the extent of the benefits to us, the availability of other sources of comparable products or services and the extent of the related person's interest in the transaction.

Director Independence

The Company is currently managed by a five-member board of directors. All of the Company's current directors are "independent" as that term is defined under the rules of The NASDAQ Stock Market.

Item 14. Principal Accounting Fees and Services.

The following table summarizes the fees for professional services rendered by Marcum LLP (second quarter of 2019 and forward) and RSM US LLP (2018 through first quarter of 2019), the Company's independent registered public accounting firms, for each of the respective last two fiscal years:

Fee Category	2019	2018
Audit Fees	$ 597,764	$ 500,535
Audit-Related Fees	85,225	8,200
Tax Fees	63,000	14,700
Total Fees	$ 745,989	$ 523,435

Audit Fees

Represents fees for professional services provided in connection with the audit of the Company's annual financial statements and reviews of the Company's quarterly interim financial statements.

Audit-Related Fees

Fees related to review of registration statements, acquisition due diligence and statutory audits.

Tax Fees

Tax fees are associated with tax compliance, tax advice, tax planning and tax preparation services.

The Audit Committee is responsible for appointing, setting compensation and overseeing the work of the independent auditors. The Audit Committee has established a policy regarding pre-approval of all auditing services and the terms thereof and non-audit services (other than non-audit services prohibited under Section 10A(g) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") or the applicable rules of the SEC or the Public Company Accounting Oversight Board) to be provided to the Company by the independent auditor. However, the pre-approval requirement may be waived with respect to the provision of non-audit services for the Company if the "de minimis" provisions of Section 10A(i)(1)(B) of the Exchange Act are satisfied.

The Audit Committee has considered whether the provision of Audit-Related Fees, Tax Fees, and all other fees as described above is compatible with maintaining RSM US LLP and Marcum, LLP's independence and has determined that such services for fiscal years 2019 and 2018 were compatible. All such services were approved by the Audit Committee pursuant to Rule 2-01 of Regulation S-X under the Exchange Act to the extent that rule was applicable.

The Audit Committee is responsible for reviewing and discussing the audit financial statements with management, discussing with the independent registered public accountants the matters required by Public Company Accounting Oversight Board Auditing Standard No. 1301 *Communications with Audit Committees*, receiving written disclosures from the independent registered public accountants required by the applicable requirements of the Public Company Accounting Oversight Board regarding the independent registered public accountants' communications with the Audit Committee concerning independence and discussing with the independent registered public accountants their independence, and recommending to the Board that the audit financial statements be included in the Company's Annual Report on Form 10-K.

PART IV

Item 15. Exhibits, Financial Statement Schedules.

(a)(1) *Financial Statements*. The financial statements filed as part of this report are listed on the Index to the Consolidated Financial Statements.

(a)(2) *Financial Statement Schedules*. Schedules are omitted because they are not applicable or the required information is shown in the consolidated financial statements or notes thereto.

(a)(3) *Exhibits.* Reference is made to the Exhibit Index. The exhibits are included, or incorporated by reference, in this annual report on Form 10-K and are numbered in accordance with Item 601 of Regulation S-K.

Item 16. Form 10-K Summary.

None.

SIGNATURES

Pursuant to the requirements 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.

Cancer Genetics, Inc.
(Registrant)

Date: May 29, 2020

/s/ John A. Roberts

John A. Roberts

President and Chief Executive Officer
(Principal Executive Officer and duly authorized signatory)

Date: May 29, 2020

/s/ M. Glenn Miles

M. Glenn Miles

Chief Financial Officer
(Principal Financial and Accounting Officer)

SIGNATURES AND POWER OF ATTORNEY

KNOW ALL BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints John A. Roberts and M. Glenn Miles, and each of them, his true and lawful agent, proxy and attorney-in-fact, with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to (i) act on, sign and file with the Securities and Exchange Commission any and all amendments to this annual report on Form 10-K together with all schedules and exhibits thereto, (ii) act on, sign and file such certificates, instruments, agreements and other documents as may be necessary or appropriate in connection therewith and, (iii) take any and all actions which may be necessary or appropriate to be done, as fully for all intents and purposes as he might or could do in person, hereby approving, ratifying and confirming all that such agent, proxy and attorney-in-fact or any of his substitutes may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Act, this annual report on Form 10-K has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ John A. Roberts John A. Roberts	President and Chief Executive Officer *(Principal Executive Officer)*	May 29, 2020
/s/ M. Glenn Miles M. Glenn Miles	Chief Financial Officer *(Principal Financial and Accounting Officer)*	May 29, 2020
/s/ Geoffrey Harris Geoffrey Harris	Chairman of the Board of Directors	May 29, 2020
/s/ Edmund Cannon Edmund Cannon	Director	May 29, 2020
/s/ Howard McLeod Howard McLeod	Director	May 29, 2020
/s/ Raju S. K. Chaganti Raju S. K. Chaganti, Ph.D.	Director	May 29, 2020
/s/ Franklyn G. Prendergast Franklyn G. Prendergast, M.D., Ph.D.	Director	May 29, 2020

INDEX TO EXHIBITS

Exhibit No.	Description
2.1	Stock Purchase Agreement, dated as of August 14, 2017, by and among the Company, the Trustee of The Brandt Family Trust, a trust organized under the laws of Australia, Sabine Brandt, Royal Melbourne Institute of Technology, South Australian Life Science Advancement Partnership, LP, vivoPharm Pty Ltd, Dr. Ralf Brandt, as Shareholders' Representative and the Management Parties party thereto (incorporated by reference to Exhibit 2.1 of the Company's Current Report on Form 8-K filed on August 16, 2017 with the Securities and Exchange Commission).
2.2	Agreement and Plan of Merger, dated September 18, 2018, by and among Cancer Genetics, Inc., NovellusDx Ltd. and Wogolos Ltd. (incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on September 21, 2018).
2.3	Secured Creditor Asset Purchase Agreement, dated July 15, 2019, by and among Interpace BioPharma, Inc., Cancer Genetics, Inc., Interpace Diagnostics Group, Inc. and Partners for Growth IV, L.P. (incorporated by reference to Exhibit 2.1 of the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on July 19, 2019).
2.4	Asset Purchase Agreement, dated July 5, 2019, by and among siParadigm, LLC and Cancer Genetics, Inc. (incorporated by reference to Exhibit 2.1 of the Company's Quarterly Report on Form 10-Q, filed with the Securities and Exchange Commission on August 19, 2019).
3.1	Fourth Amended and Restated Certificate of Incorporation of Cancer Genetics, Inc., filed as Exhibit 3.1 to QuarterlyReport on Form 10-Q, filed with the Securities and Exchange Commission on May 15, 2013 and incorporated hereinby reference.
3.2	Amended and Restated Bylaws of Cancer Genetics, Inc., filed as Exhibit 3.4 to Form S-1/A filed on April 30, 2012 (File No. 333-178836) and incorporated herein by reference.
4.1	Specimen Common Stock certificate of Cancer Genetics, Inc., filed as Exhibit 4.1 to Form S-1/A filed on May 16, 2012 (File No. 333-178836) and incorporated herein by reference.
4.2	Form of October 2012 Warrant issued by Cancer Genetics, Inc. to John Pappajohn and Mark Oman, filed as Exhibit 10.53 to Form S-1/A filed on October 23, 2012 (File No. 333-178836) and incorporated herein by reference.
4.3	Share Purchase Agreement, by and among Cancer Genetics (India) Private Limited, Cancer Genetics, Inc., BioServe Biotechnologies (India) Pvt. Ltd., BioServe Biotechnologies Ltd., and each of the Selling Shareholders named therein, dated May 12, 2014 (incorporated by reference to Exhibit 4.1 of the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on August 18, 2014).
4.4	Stock Purchase Agreement, by and between Cancer Genetics, Inc. and BioServe Biotechnologies Ltd., dated May 12, 2014 (incorporated by reference to Exhibit 4.2 of the Company's Current Report on Form 8-K filed with the Securities and Exchange Commission on August 18, 2014).
4.5	Form of Warrant Agreement of Cancer Genetics, Inc. (incorporated by reference to Exhibit 4.1 of the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on November 6, 2015).
4.6	Form of Warrant Agreement of Cancer Genetics, Inc. (incorporated by reference to Exhibit 4.1 of the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on May 20, 2016).
4.7	Form of Warrant Agreement of Cancer Genetics, Inc. (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on September 9, 2016).
4.8	Registration Rights Agreement, dated as of August 14, 2017, by and between the Company and Aspire Capital Fund, LLC (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on August 16, 2017).
4.9	Form of Warrant Agreement of Cancer Genetics, Inc. (incorporated by reference to Exhibit 4.1 of the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on December 8, 2017).
4.10	Omnibus Warrant Amendment to Warrant Issued to Lenders, dated as of June 30, 2018 (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on July 5, 2018).
4.11	Convertible Promissory Note, dated July 17, 2018, in favor of Iliad Research and Trading, L.P. (incorporated by reference to Exhibit 4.1 of the Company's Current Report on Form 8-K filed on July 18, 2018 with the Securities and Exchange Commission).

Exhibit No.	Description
4.12	Form of Underwriter Warrants of Cancer Genetics, Inc. (incorporated by reference to Exhibit 4.1 of the Company's Current Report on Form 8-K filed on January 10, 2019 with the Securities and Exchange Commission).
4.13	Form of Placement Agent Warrants of Cancer Genetics, Inc. (incorporated by reference to Exhibit 4.1 of the Company's Current Report on Form 8-K filed with the Securities and Exchange Commission on January 29, 2019).
4.14*	Description of Securities
4.15	Promissory Note with Atlas Sciences (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on October 25, 2019).
10.1	Amended and Restated 2008 Stock Option Plan, filed as Exhibit 10.1 to Form S-1/A filed on October 23, 2012 (File No. 333-178836) and incorporated herein by reference. †
10.2	Form of Notice of Stock Option Grant under 2008 Stock Option Plan, filed as Exhibit 10.2 to Form S-1 filed on December 30, 2011 (File No. 333-178836) and incorporated herein by reference. †
10.3	Form of Stock Option Grant Agreement under 2008 Stock Option Plan, filed as Exhibit 10.3 to Form S-1 filed on December 30, 2011 (File No. 333-178836) and incorporated herein by reference. †
10.4	Form of Exercise Notice and Restricted Stock Purchase Agreement under 2008 Stock Option Plan, filed as Exhibit 10.4 to Form S-1 filed on December 30, 2011 (File No. 333-178836) and incorporated herein by reference. †
10.5	Form of Stock Option Grant Agreement under 2011 Stock Option Plan, filed as Exhibit 10.6 to Form S-1 filed on December 30, 2011 (File No. 333-178836) and incorporated herein by reference. †
10.6	Form of Indemnification Agreement, filed as Exhibit 10.7 to Form S-1 filed on December 30, 2011 (File No. 333-178836) and incorporated herein by reference. †
10.7	Office Lease Agreement, between Cancer Genetics, Inc. and Onyx Equities, LLC, dated October 9, 2007, filed as Exhibit 10.20 to Form S-1/A filed on April 23, 2012 (File No. 333-178836) and incorporated herein by reference.
10.8	Affiliation Agreement, between Cancer Genetics, Inc. and Mayo Foundation for Medical Education and Research dated November 7, 2011, filed as Exhibit 10.35 to Form S-1 filed on December 30, 2011 (File No. 333-178836) and incorporated herein by reference.
10.9	Letter Agreement, between Meadows Office, L.L.C. and Cancer Genetics, Inc., dated January 10, 2008, filed as Exhibit 10.44 to Form S-1/A filed on April 23, 2012 (File No. 333-178836) and incorporated herein by reference.
10.10	Amendment No. 1 to Affiliation Agreement, between Cancer Genetics, Inc. and Mayo Foundation for Medical Education and Research, dated September 29, 2012, filed as Exhibit 10.49 to Form S-1/A filed on October 23, 2012 (File No. 333-178836) and incorporated herein by reference.
10.11	Restated Registration Rights Agreement, between Cancer Genetics, Inc., Mark Oman and John Pappajohn, dated October 17, 2012, filed as Exhibit 10.54 to Form S-1/A filed on October 23, 2012 (File No. 333-178836) and incorporated herein by reference.
10.12	Amendment No. 2 to Affiliation Agreement between Cancer Genetics, Inc. and Mayo Foundation for Medical Education and Research, dated January 4, 2013, filed as Exhibit 10.61 to Form S-1/A filed on January 8, 2013 (File No. 333-178836) and incorporated herein by reference.
10.13	Form of Letter Agreement between Cancer Genetics, Inc. and certain warrant holders waiving certain anti-dilution rights, filed as Exhibit 10.68 to Form S-1/A filed on March 4, 2013 (File No. 333-178836) and incorporated herein by reference.
10.14	Letter Amendment dated March 20, 2013 to Letter Agreement, between Meadows Office, L.L.C. and Cancer Genetics, Inc., dated April 6, 2012, filed as Exhibit 10.72 to Form S-1/A filed on March 22, 2013 (File No. 333-178836) and incorporated herein by reference.
10.15	Amendment No. 3 to Affiliation Agreement between the Company and Mayo Foundation for Medical Education and Research, dated May 21, 2013, filed as Exhibit 10.73 to Form S-1 filed on June 5, 2013 (File No. 333-189117) and incorporated herein by reference.
10.16	Limited Liability Company Agreement of OncoSpire Genomics, LLC, dated May 21, 2013, filed as Exhibit 10.74 to Form S-1/A filed on July 12, 2013 (File No. 333-189117) and incorporated herein by reference.
10.17	Joint Development Intellectual Property Agreement, among the Company, Mayo Foundation for Medical Education and Research and OncoSpire Genomics, LLC, dated May 21, 2013, filed as Exhibit 10.75 to Form S-1/A filed on July 12, 2013 (File No. 333-189117) and incorporated herein by reference.

Exhibit No.	Description
10.18	2011 Equity Incentive Plan, as amended and restated effective May 14, 2015, filed as Exhibit 10.1 to Form S-8 filed on July 28, 2015 (File Number 333-205903) and incorporated herein by reference. †
10.19	Form of Warrant Agreement of Cancer Genetics, Inc. (corrected) (incorporated by reference to Exhibit 4.1 of the Company's Quarterly Report on Form 10-Q, filed with the Securities and Exchange Commission on November 9, 2015).
10.20	Office Lease, between Response Genetics, Inc. and Health Research Association, dated September 16, 2004 (incorporated by reference to the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 10, 2016).
10.21	Tenth Amendment to Office Lease, between Response Genetics, Inc. and University of Southern California, dated June 30, 2015 (incorporated by reference to the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 10, 2015).
10.22	Form of Securities Purchase Agreement, dated May 19, 2016, by and between Cancer Genetics, Inc. and various purchasers named therein (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the Securities and Exchange Commission on May 20, 2016).
10.23	Eleventh Amendment to Lease Agreement, dated June 10, 2016, between University of Southern California and Cancer Genetics, Inc. (incorporated by reference to Exhibit 10.1 of the Company's Quarterly Report on Form 10-Q, filed with the Securities and Exchange Commission on August 9, 2016).
10.24	Employment Agreement of John Roberts, dated June 27, 2016 (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed with the Securities and Exchange Commission on June 30, 2016). †
10.25	Form of Securities Purchase Agreement, dated September 8, 2016, by and between Cancer Genetics, Inc. and various purchasers named therein (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the Securities and Exchange Commission on September 9, 2016).
10.26	Amendment, dated as of October 11, 2016, to Amended and Restated Cancer Genetics, Inc. 2011 Equity Incentive Plan (incorporated by reference to Exhibit 10.1 to the Company's current report on Form 8-K, filed with the Securities and Exchange Commission on October 12, 2016).
10.27	Form of Warrant issued to lenders dated March 22, 2017 (incorporated by reference to Exhibit 10.83 to the Company's Annual Report on Form 10-K, filed with the Securities and Exchange Commission on March 23, 2017).
10.28	Common Stock Purchase Agreement, dated as of August 14, 2017, by and between the Company and Aspire Capital Fund, LLC (incorporated by reference to the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on August 16, 2017).
10.29	Thirteenth Amendment to Lease Agreement by and between the University of South Carolina and Cancer Genetics, Inc., dated March 29, 2018 (incorporated by reference to Exhibit 10.61 to the Company's Annual Report on Form 10-K, filed with the Securities and Exchange Commission on April 2, 2018).
10.30	First Amendment to Lease by and between Meadows Landmark, LLC and Cancer Genetics, Inc., dated October 30, 2017 (incorporated by reference to Exhibit 10.62 to the Company's Annual Report on Form 10-K, filed with the Securities and Exchange Commission on April 2, 2018).
10.31	Share Purchase Agreement dated April 26, 2018 by and among BioServe Biotechnologies (India) Private Limited, Cancer Genetics, Inc. and Reprocell Incorporated (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on April 27, 2018).
10.32	Securities Purchase Agreement, dated July 17, 2018, between Cancer Genetics, Inc. and Iliad Research and Trading, L.P. (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed on July 18, 2018 with the Securities and Exchange Commission).
10.33	Credit Agreement, dated September 18, 2018, by and between Cancer Genetics, Inc. and NovellusDx Ltd. (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on September 21, 2018).
10.34	Promissory Note, dated September 18, 2018, in favor of NovellusDx Ltd. (incorporated by reference to Exhibit 10.2 of the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on September 21, 2018).
10.35	Offer Letter with Glenn Miles, dated November 16, 2018 (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K/A, filed with the Securities and Exchange Commission on November 21, 2018).†

Exhibit No.	Description
10.36	Employment Agreement with Ralf Brandt, dated August 15, 2017 (incorporated by reference to Exhibit 10.81 of the Company's Annual Report on Form 10-K, filed with the Securities and Exchange Commission on April 16, 2019). †
10.37	Promissory Note of Interpace BioPharma, Inc., dated July 15, 2019, in favor of Cancer Genetics, Inc. (incorporated by reference to Exhibit 4.1 of the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on July 19, 2019).
10.38	Transition Services Agreement, dated July 15, 2019, by and between Interpace BioPharma, Inc. and Cancer Genetics, Inc. (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on July 19, 2019).
10.39	Note Purchase Agreement with Atlas Sciences (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on October 25, 2019).
10.40	Settlement Agreement with NovellusDx Ltd. (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K, filed with the Securities and Exchange Commission on October 25, 2019).
21.1	Subsidiaries of Cancer Genetics, Inc. (incorporated by reference to Exhibit 21.1 to the Company's Annual Report on Form 10-K, filed with the Securities and Exchange Commission on April 16, 2019).
23.1*	Consent of Marcum LLP.
23.2*	Consent of RSM US, LLP
24.1	Power of attorney (included on the signature page).
31.1*	Certification of Principal Executive Officer pursuant to Rules 13a-14(a) and 15d-14(a) promulgated under the Securities and Exchange Act of 1934, as amended.
31.2*	Certification of Principal Financial Officer pursuant to Rules 13a-14(a) and 15d-14(a) promulgated under the Securities and Exchange Act of 1934, as amended.
32.1**	Certification of Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2**	Certification of 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*	The following financial statements from this annual report on Form 10-K of Cancer Genetics, Inc. for the year ended December 31, 2019, filed on April 28, 2020, formatted in XBRL (eXtensible Business Reporting Language): (i) the Consolidated Balance Sheets, (ii) the Consolidated Statements of Operations and Other Comprehensive Loss, (iii) the Consolidated Statements of Cash Flows, (iv) the Consolidated Statements of Stockholders' Equity and (v) the Notes to the Consolidated Financial Statements.

* Filed herewith.

** Furnished herewith.

† Indicates a management contract or compensation plan, contract or arrangement.

Exhibit 4.14

DESCRIPTION OF CANCER GENETICS INC.'S SECURITIES
REGISTERED PURSUANT TO SECTION 12 OF THE
SECURITIES EXCHANGE ACT OF 1934

As of December 31, 2019, Cancer Genetics, Inc. (the "Companfdy") had one class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended: our voting common stock, $.0001 par value per share.

DESCRIPTION OF CAPITAL STOCK

The following is a summary of information concerning capital stock of Cancer Genetics, Inc. ("us," "our," "we" or the "Company") and does not purport to be complete. The summary is subject to, and qualified in its entirety by reference to, Cancer Genetics, Inc.'s fourth amended and restated certificate of incorporation, as amended, amended and restated bylaws and the Delaware General Corporation Law (the "DGCL"). You are urged to read our fourth amended and restated certificate of incorporation, as amended, amended and restated bylaws and the applicable provisions of the DGCL for additional information.

General

Our fourth amended and restated certificate of incorporation authorizes us to issue up to 100,000,000 shares of common stock, par value $0.0001 per share, and 9,764,000 shares of preferred stock, par value $0.0001 per share. As of December 31, 2019, 2,104,053 shares of Common Stock, and no shares of our preferred stock, were outstanding. All outstanding shares of our common stock are fully paid and non-assessable.

Voting Rights. Holders of our common stock are entitled to one vote per share in the election of directors and on all other matters on which stockholders are entitled or permitted to vote. Holders of our common stock are not entitled to cumulative voting rights.

*Dividend Rights***.** Subject to the terms of any outstanding series of preferred stock, the holders of our common stock are entitled to dividends in the amounts and at times as may be declared by the board of directors out of funds legally available therefor.

Liquidation Rights. Upon liquidation or dissolution, holders of our common stock are entitled to share ratably in all net assets available for distribution to stockholders after we have paid, or provided for payment of, all of our debts and liabilities, and after payment of any liquidation preferences to holders of our preferred stock.

Other Matters. Holders of our common stock have no redemption, conversion or preemptive rights. There are no sinking fund provisions applicable to our common stock. The rights, preferences and privileges of the holders of our common stock are subject to the rights of the holders of shares of any series of preferred stock that we may issue in the future.

Preferred Stock

Our board of directors has the authority to issue preferred stock in one or more classes or series and to fix the designations, powers, preferences and rights, and the qualifications, limitations or restrictions thereof, including dividend rights, conversion right, voting rights, terms of redemption, liquidation preferences and the number of shares constituting any class or series, without further vote or action by the stockholders. Although we have no present plans to issue any other shares of preferred stock, the issuance of shares of preferred stock, or the issuance of rights to purchase such shares, could decrease the amount of earnings and assets available for distribution to the holders of common stock, could adversely affect the rights and powers, including voting rights, of the common stock, and could have the effect of delaying, deterring or preventing a change of control of us or an unsolicited acquisition proposal. The preferred stock

may provide for an adjustment of the conversion price in the event of an issuance or deemed issuance at a price less than the applicable conversion price, subject to certain exceptions.

Anti-Takeover Effects of Delaware law and Our Certificate of Incorporation and Bylaws

The provisions of Delaware law, our certificate of incorporation and our bylaws described below may have the effect of delaying, deferring or discouraging another party from acquiring control of us.

Section 203 of the Delaware General Corporation Law

We are subject to Section 203 of the Delaware General Corporation Law, which prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- before such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;

- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned (i) by persons who are directors and also officers and (ii) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

- on or after such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 defines a "business combination" to include any merger or consolidation involving the corporation and the interested stockholder; any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder; subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder; any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; or the receipt by the interested stockholder of the benefit of any loss, advances, guarantees, pledges or other financial benefits by or through the corporation.

Certificate of Incorporation and Bylaws

Our certificate of incorporation and bylaws provide that:

- the authorized number of directors can be changed only by resolution of our board of directors;

- our bylaws may be amended or repealed by our board of directors or our stockholders;

- no action can be taken by stockholders except at an annual or special meeting of the stockholders called in accordance with our bylaws, and stockholders may not act by written consent, unless the stockholders amend the certificate of incorporation to provide otherwise;

- stockholders may not call special meetings of the stockholders or fill vacancies on the board;

- our board of directors will be authorized to issue, without stockholder approval, preferred stock, the rights of which will be determined at the discretion of the board of directors and that, if issued, could operate as a "poison pill" to dilute the stock ownership of a potential hostile acquirer to prevent an acquisition that our board of directors does not approve;

- our stockholders do not have cumulative voting rights, and therefore our stockholders holding a majority of the shares of common stock outstanding will be able to elect all of our directors; and

- our stockholders must comply with advance notice provisions to bring business before or nominate directors for election at a stockholder meeting.

Potential Effects of Authorized but Unissued Stock

We have shares of common stock and preferred stock available for future issuance without stockholder approval. We may utilize these additional shares for a variety of corporate purposes, including future public offerings to raise additional capital, to facilitate corporate acquisitions or payment as a dividend on the capital stock.

The existence of unissued and unreserved common stock and preferred stock may enable our board of directors to issue shares to persons friendly to current management or to issue preferred stock with terms that could render more difficult or discourage a third-party attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise, thereby protecting the continuity of our management. In addition, the board of directors has the discretion to determine designations, rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences of each series of preferred stock, all to the fullest extent permissible under the Delaware General Corporation Law and subject to any limitations set forth in our certificate of incorporation. The purpose of authorizing the board of directors to issue preferred stock and to determine the rights and preferences applicable to such preferred stock is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing desirable flexibility in connection with possible financings, acquisitions and other corporate purposes, could have the effect of making it more difficult for a third-party to acquire, or could discourage a third-party from acquiring, a majority of our outstanding voting stock.

Exclusive Forum Charter Provision

Our certificate of incorporation requires that the Court of Chancery of the State of Delaware will, to the fullest extent permitted by applicable law, be the sole and exclusive forum for the following:

- any derivative action or proceeding brought on behalf of the Company;

- any action asserting a claim of breach of a fiduciary duty owed by, or other wrongdoing by, any director, officer, employee or agent of the Company to the Company or the Company's stockholders;

- any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law or the Company's certificate of incorporation or bylaws;

- any action to interpret, apply, enforce or determine the validity of the Company's certificate of incorporation or bylaws; or

- any action asserting a claim governed by the internal affairs doctrine, in each such case subject to said Court of Chancery having personal jurisdiction over the indispensable parties named as defendants therein.

Because the applicability of the exclusive forum provision is limited to the extent permitted by applicable law, we do not intend that the exclusive forum provision would apply to suits brought to enforce any duty or liability created by the Securities Exchange Act of 1934, as amended, or any other claim for which the federal courts have exclusive jurisdiction, and acknowledge that federal courts have concurrent jurisdiction over all suits brought to enforce any duty or liability created by the Securities Act. We note that there is uncertainty as to whether a court would enforce the provision and that investors cannot waive compliance with the federal securities laws and the rules and regulations thereunder. Although we believe this provision benefits us by providing increased consistency in the application of

Delaware law in the types of lawsuits to which it applies, the provision may have the effect of discouraging lawsuits against our directors and officers.

Transfer Agent

The transfer agent and registrar for our common stock is Continental Stock Transfer & Trust Company. Its address is 1 State Street, 30th Floor, New York, NY 10004.

NASDAQ Listing

Our common stock is traded on The Nasdaq Capital Market under the symbol "CGIX."

Exhibit 23.1

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM'S CONSENT

We consent to the incorporation by reference in the Registration Statement of Cancer Genetics, Inc. on Form S-8 (Nos. 333-191520, 333-191521, 333-196198, 333-205903 and 333-214599) and on Form S-3 (No. 333-218229) and on Form S-1 (No. 333-215284) of our report dated May 29, 2020, which includes an explanatory paragraph as to the Company's ability to continue as a going concern, with respect to our audit of the consolidated financial statements of Cancer Genetics, Inc. as of December 31, 2019 and for the year ended December 31, 2019, which report is included in this Annual Report on Form 10-K of Cancer Genetics, Inc. for the year ended December 31, 2019.

/s/ Marcum LLP

Marcum LLP
Houston, Texas
May 29, 2020

Exhibit 23.2

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statements on Form S-8 (Nos. 333-191520, 333-191521, 333-196198, 333-205903 and 333-214599) and on Form S-3 (No. 333-218229) and on Form S-1 (No. 333-215284) of Cancer Genetics, Inc. of our report dated April 15, 2019, relating to the consolidated financial statements of Cancer Genetics, Inc. and Subsidiaries appearing in the Annual Report on Form 10-K of Cancer Genetics, Inc. for the year ended December 31, 2018.

/s/ RSM US LLP

New York, New York
May 29, 2020

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, John A. Roberts certify that:

1. I have reviewed this annual report on Form 10-K of Cancer Genetics, Inc. (the "Registrant");

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Registrant as of, and for, the periods presented in this report;

4. The Registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Registrant and have:

a. designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the Registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b. designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c. evaluated the effectiveness of the Registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d. disclosed in this report any change in the Registrant's internal control over financial reporting that occurred during the Registrant's most recent fiscal quarter (the Registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the Registrant's internal control over financial reporting; and

5. The Registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Registrant's auditors and the audit committee of the Registrant's board of directors (or persons performing the equivalent functions):

a. all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Registrant's ability to record, process, summarize and report financial information; and

b. any fraud, whether or not material, that involves management or other employees who have a significant role in the Registrant's internal control over financial reporting.

Date: May 29, 2020

/s/ John A. Roberts

John A. Roberts

President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, M. Glenn Miles certify that:

1. I have reviewed this annual report on Form 10-K of Cancer Genetics, Inc. (the "Registrant");

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Registrant as of, and for, the periods presented in this report;

4. The Registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Registrant and have:

a. designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the Registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b. designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c. evaluated the effectiveness of the Registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d. disclosed in this report any change in the Registrant's internal control over financial reporting that occurred during the Registrant's most recent fiscal quarter (the Registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the Registrant's internal control over financial reporting; and

5. The Registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Registrant's auditors and the audit committee of the Registrant's board of directors (or persons performing the equivalent functions):

a. all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Registrant's ability to record, process, summarize and report financial information; and

b. any fraud, whether or not material, that involves management or other employees who have a significant role in the Registrant's internal control over financial reporting.

Date: May 29, 2020

/s/ M. Glenn Miles

M. Glenn Miles

Chief Financial Officer

(Principal Financial and Accounting Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the annual report of Cancer Genetics, Inc. (the "Company") on Form 10-K for the year ended December 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, John A. Roberts, President and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 29, 2020

/s/ John A. Roberts

John A. Roberts

President and Chief Executive Officer
(*Principal Executive Officer)*

The foregoing certification is being furnished solely pursuant to 18 U.S.C. Section 1350 and is not being filed as part of the Report or as a separate disclosure document.

Exhibit 32.2

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the annual report of Cancer Genetics, Inc. (the "Company") on Form 10-K for the year ended December 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, M. Glenn Miles, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 29, 2020

/s/ M. Glenn Miles

M. Glenn Miles

Chief Financial Officer
(Principal Financial and Accounting Officer)

The foregoing certification is being furnished solely pursuant to 18 U.S.C. Section 1350 and is not being filed as part of the Report or as a separate disclosure document.