Cryoport, Inc.
Form 10-K
March 13, 2019

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-K

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

For the fiscal year ended December 31, 2018

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

Commission File Number: 001-34632

CRYOPORT, INC.

(Exact Name of Registrant as Specified in its Charter)

Nevada	**88-0313393**
(State or other jurisdiction of	**(I.R.S. Employer**
incorporation or organization)	**Identification No.)**

17305 Daimler St.

Irvine, CA 92614

(Address of principal executive offices)

(949) 470-2300

(Registrant's telephone number, including area code)

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

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, $0.001 par value	The NASDAQ Stock Market LLC
Warrants to purchase Common Stock	The NASDAQ Stock Market LLC

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

Warrants to Purchase Common Stock

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

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 x

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes x 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 (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes x No ¨

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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	x
Non-accelerated filer	¨	Smaller reporting company	x
		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 whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ¨ No x

The aggregate market value of common stock held by non-affiliates of the registrant as of June 30, 2018 was $351,453,000 based on the closing sale price of such common equity on such date (excluding 6,178,603 shares of common stock held by directors and officers, and any stockholders whose ownership exceeds five percent of the shares outstanding as of June 30, 2018).

As of March 1, 2019, there were 30,436,322 shares of the registrant's common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

None

TABLE OF CONTENTS

		Page
PART I		
Item 1.	Business	3
Item 1A.	Risk Factors	18
Item 1B.	Unresolved Staff Comments	29
Item 2.	Properties	29
Item 3.	Legal Proceedings	29
Item 4.	Mine Safety Disclosures	29
PART II		
Item 5.	Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	30
Item 6.	Selected Financial Data	30
Item 7.	Management's Discussion and Analysis of Financial Condition and Results of Operations	31
Item 7A.	Quantitative and Qualitative Disclosures About Market Risk	36
Item 8.	Financial Statements and Supplementary Data	36
Item 9.	Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	36
Item 9A.	Controls and Procedures	36
Item 9B.	Other Information	37
PART III		
Item 10.	Directors, Executive Officers and Corporate Governance	39
Item 11.	Executive Compensation	42
Item 12.	Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters	48
Item 13.	Certain Relationships and Related Transactions, and Director Independence	49
Item 14.	Principal Accountant Fees and Services	49
PART IV		
Item 15.	Exhibits and Financial Statement Schedules	50
Signatures		51

FORWARD-LOOKING STATEMENTS

This Form 10-K contains certain forward-looking statements. These forward-looking statements involve a number of risks and uncertainties. These forward-looking statements can generally be identified as such because the context of the statement will include certain words, including but not limited to, “believes,” “may,” “will,” “expects,” “intends,” “estimates,” “anticipates,” “plans,” “seeks,” “continues,” “predicts,” “potential,” “likely,” or “opportunity,” and also contains predictions, estimates and other forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, (the “Securities Act”) and Section 21E of the Securities Exchange Act of 1934, as amended, (the “Exchange Act”) and in reliance upon the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Such forward-looking statements are based on the current beliefs of the Company’s management, as well as assumptions made by and information currently available to the Company’s management. Readers of this Form 10-K should not put undue reliance on these forward-looking statements, which speak only as of the time this Form 10-K was filed with the Securities and Exchange Commission (the “SEC”). Reference is made in particular to forward-looking statements regarding the success of our products, product approvals, product sales, revenues, development timelines, product acquisitions, liquidity and capital resources and trends. Forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified. Cryoport Inc.’s actual results may differ materially from the results projected in the forward-looking statements. Factors that might cause such a difference include, but are not limited to, those discussed in this Annual Report on Form 10-K, including the “Risk Factors” in “Item 1A — Risk Factors”, and in “Item 7 — Management’s Discussion and Analysis of Financial Condition and Results of Operations” included in Part II.

Past financial or operating performance is not necessarily a reliable indicator of future performance, and you should not use our historical performance to anticipate results or future period trends. We can give no assurances that any of the events anticipated by the forward-looking statements will occur or, if any of them do, what impact they will have on our results of operations and financial condition. Except as required by law, we do not undertake to update any such forward-looking statements and expressly disclaim any duty to update the information contained in this Form 10-K.

PART I

Item 1. *Business*

Overview

Cryoport is a life sciences services company focused on providing critical solutions, such as temperature controlled logistics, bioservices and end-product fulfillment to the biopharma, reproductive medicine and animal health markets. Our differentiated products and services enable our clients to ship, store and deliver biologics and other life sciences commodities in a continual temperature controlled state, including ultra-low cryogenic and other temperature ranges.

Cryoport's advanced, comprehensive and technology-centric systems and solutions were designed to support the global high-volume distribution of commercial biologic and cell based products regulated by the United States Food and Drug Administration (FDA) and other international regulatory bodies for distribution in the Americas, EMEA (Europe, the Middle East, and Africa) and APAC (Asia-Pacific) regions. Cryoport's solutions are also designed to support pre-clinical, clinical trials, Biologics License Applications (BLA), Investigational New Drug Applications (IND) and New Drug Applications (NDA) with the FDA as well global clinical trials initiated in other countries, where strict regulatory compliance and quality assurance is mandated. Our industry standard setting Chain of Compliance™ solution, which includes vital analytics, such as 'chain-of-condition' and 'chain-of-custody' information in a single data stream, empowers our clients' continuous vigilance over their commodities. In addition, our Chain of Compliance™ standard ensures full traceability of the equipment used and the processes employed, further supporting each client's goal to minimize risk and maximize success of their new biologics or other commodities as they are introduced into the global markets.

As part of our services, our technologies provide the ability for Cryoport personnel and our clients to monitor conditions of the internal shipping environment, location and other specified critical variables for each shipment in near real time. In accordance with client requirements, information is recorded and archived for each shipment for scientific, quality assurance and regulatory purposes in a secure cloud-based system that can be accessed globally. This information provides an audit trail that can verify the in-shipment condition in which the life sciences commodity, material, product, vaccine or therapy was shipped and/or stored.

One of the most important features of our Cryoport Express® Solutions is the sophisticated, cloud-based, logistics management platform, which is branded as the Cryoportal® Logistics Management Platform. The Cryoportal® supports the management of shipments through a single interface, which includes order entry, document preparation, customs documentation, courier management, near real-time shipment tracking, issue resolution, and regulatory compliance requirements. In addition, it provides unique and incisive information dashboards and validation documentation for every shipment through data collected by the SmartPak II™ Condition Monitoring System). The Cryoportal® can record and retain a fully documented history of all Cryoport Express® Shippers, including 'chain-of-custody', 'chain-of-condition', 'chain-of-identity', and Chain of Compliance™ information for each shipment, which is used to ensure that the stability of shipped biologic commodities are maintained throughout the shipping cycle. At the client's option, recorded information is archived, allowing the client to meet exacting requirements necessary for scientific work and/or for proof of regulatory compliance during the logistics process.

Our Cryoport Express® Solutions include a family of Cryoport Express® Shippers ranging from liquid nitrogen dry vapor shippers (-150) to our C3™ Shippers (2-8), which are powered by phase-change materials. Cryoport Express® Shippers are precision engineered assemblies that are reliable, cost-effective and reusable or recyclable. Our liquid nitrogen dry vapor Cryoport Express® Shippers utilize an innovative application of 'dry vapor' liquid nitrogen technology and, most often, include a SmartPak II™ Condition Monitoring System. Cryoport Express® Shippers meet International Air Transport Association ("IATA") requirements for transport, including Class 6.2 infectious substances. Cryoport Express® Shippers are also International Safe Transit Association ("ISTA") "Transit Tested" certified.

As part of our services, we assist and/or provide clients with secondary packaging that is placed inside the main chamber of our Cryoport Express® Shippers. In addition to vials, canes, straws, goblets, plates, etc., we also offer engineering and consulting services to assist clients in creating and developing customized secondary packaging that meet their specific requirements.

Our advanced technologies and dedicated personnel allow us to continue to expand our services footprint with a growing suite of services, products and competencies serving the life sciences industry, which currently include: information technology, primary and secondary packaging, near real-time monitoring, analytics, logistics distribution, consulting, laboratory relocation, fleet management, embedded logistics support, validation services (especially for shipping lanes and packaging). A sample of our client facing, value-added competencies addressing specific client requirements are as follows:

- "***Personalized Medicine and Cell-based Immunotherapy Solutions,"*** designed for autologous therapies in which our Cryoport Express® Solutions serve as an enabling technology for the safe and efficient transportation of leukapheresis or apheresis blood products as well as the manufactured autologous cellular-based immunotherapies by providing a comprehensive logistics solution for the verified chain of condition and chain of custody, chain of identity, and Chain of Compliance™ transport from, (a) the collection of the patient's blood or cells at a point-of-care setting, to (b) a central processing facility where they are manufactured into a personalized medicine, to (c) the safe, cryogenically preserved delivery of these often irreplaceable cells to a point-of-care treatment facility. If required, Cryoport Express® Shippers can then serve as a temporary freezer/repository supporting the efficient distribution of the personalized medicine to the patient when and where the medical provider needs it, without the expense and inconvenience of on-sight, cryopreservation storage freezers.

- ***"Allogeneic Therapy Solutions,"*** designed for allogeneic therapies in which our Cryoport Express® Solutions serve as an enabling technology for the safe and efficient transportation of health donor blood products as well as the manufactured allogeneic therapies by providing a comprehensive logistic solutions for the verified chain of condition, chain of custody, chain of identity, and Chain of Compliance™ transport from, (a) the blood collection center, to (b) the manufacturing facility for the allogeneic therapy, to (c) a storage and fulfillment facility, or (d) to a point-of-care treatment facility. Again, if required, the Cryoport Express® Shipper can then serve as a temporary freezer/repository to allow the efficient distribution of the personalized medicine to the patient.

- ***"Embedded Solutions,"*** our most comprehensive solution, which involves our management of the entire temperature controlled logistics process for our client using Cryoport technology and Cryoport employees working on-sight at the client's location to manage all of the client's temperature controlled logistics needs.

- ***"Fleet Management,"*** our fleet management support service is designed to reduce our clients upfront and recurring costs through optimized utilization of resources and minimization of equipment loss. We offer both complete and partial temperature controlled outsourced fleet management services, including fleet evaluation and disposition (if required), inventory control, fleet maintenance and ongoing fleet requalification and validation.

- ***"Packaging Development,"*** using 'Design-of-Experiment' and 'Quality-by-Design' processes, Cryoport can design, engineer and employ customized packaging and/or accessories to ensure effective distribution of our client's critical commodities using our in-house team of packaging engineering competencies in the cryogenic, 2-8 and other temperature controlled ranges to meet or exceed our client's specifications. Packaging development may include integration of our SmartPak II™ Condition Monitoring System and the accommodation of our Cryoportal® Logistics Management Platform into our clients' packaging configurations, providing full access to our logistics management support competencies.

4

- ***"Consulting Services,"*** provides our clients an opportunity to leverage our in-house talent to: design custom logistics plans, perform lane assessment, lane validation, carrier validation; design custom packaging and validation, permitting clinical trial logistics design; commercial launch planning; systems integration; and end user training.

- ***"Laboratory Relocation,"*** for large moves of life sciences commodities, we use redundant temperature controlled shippers and environmentally controlled trucks. Along with our logistics partners, we ensure the integrity of client materials during all logistics phases, including loading, transport, unloading and placement. Our service includes lane and carrier permitting and validation. Our large sample capacity Cryoport Express® CryoMax™ Shipper has a holding time of up to 20 days and includes the benefit of our near real time SmartPak II™ Condition Monitoring System, which supplies monitoring information to our Cryoportal® Logistic Management Platform, providing LiveView information on the client's transport. By employing our 24/7/365 client support team to actively monitoring shipments and mitigate risks, we ensure safe shipping and relocation of large scale collections.

- ***"powered by cryoport℠,"*** available to providers of shipping and delivery services who seek to offer a "branded" cryogenic logistics solution as part of their service offerings. "powered by cryoport℠" appears prominently on the offering software interface and packaging. This option for the client to private label its service is available upon committing to certain requirements, such as minimum annual shipping volumes.

In addition to the offerings above, Cryoport is continuously evaluating, expanding and improving its range of services and solutions in response to market needs and client demand.

Competitive Advantages

With our first-to-market and technology-driven logistics services for the life sciences industry and over a decade of experience, we have established a unique lead over potential competitors. Furthermore, we are not aware of any company that offers Cryoport's full suite of solutions. Working with our tools in information technology, packaging and temperature controlled logistics, we approach our growing markets with innovation, creative thinking and advanced technologies.

The most common alternatives to Cryoport's solutions are "older technologies" and/or systems. In fact, a portion of the biopharma market and much of the animal health market still uses hazardous liquid nitrogen or dry ice with no ongoing validation processes for their equipment or procedures. In the case of dry ice, the technology delivers temperatures of approximately -80 with standard deviations up to 14 . Consequently, it provides an environment that allows cellular activity to continue and cells to degrade, impacting cell line performance and cell viability. Liquid nitrogen, on the other hand, while effective in holding cryogenic temperatures, is bulky, heavy, expensive and requires special handling to avoid spillage and accommodate weight. Both dry ice and liquid nitrogen are classified "hazardous" by IATA (International Air Transportation Association) and, therefore, are also classified as "dangerous goods," requiring additional permits and fees. Cryoport solutions on the other hand are classified as non-hazardous.

Through our experience, we know that logistics distribution can have a large impact on product/commodity conditions. This is especially important for high value and at times irreplaceable commodities that we transport, whether in support of a clinical trial or the commercial distribution of a product. We therefore go beyond traditional ISTA (International Safe Transit Association) packaging validation and have implemented Quality-by-Design processes that allow us to assess in-field events, the impact of logistics on the commodity being shipped, and the equipment being used for each individual shipments.

We have been qualified as a trusted temperature controlled logistics solutions provider for hundreds of life sciences companies and institutions and, currently, support over 300 clinical trials in the regenerative medicine space. Cryoport has logged over 260,000 shipments to over 100 countries with hundreds of different types of life sciences materials. This experience and reputation, combined with over a decade of know-how and technology, provides us with significant competitive advantages. In fact, since our inception, we have experienced minimal client attrition.

In addition, Novartis and Kite Pharmaceuticals Inc. (a Gilead company) have both entrusted Cryoport to manage the global clinical shipments of its cell therapies trials and the commercial shipments of its CAR T-cell therapies, Kymriah® and Yescarta®, respectively, which were the first two CAR T-cell therapies approved by the FDA.

Our competitive position is further enhanced by our respective "*powered by cryoport*SM" partnership agreements with FedEx, DHL, UPS, who collectively, have more than 87% of the express logistics aircraft in service and who, respectively, have been expanding other parts of their temperature controlled offerings for the life sciences industry.

We continuously enhance and broaden our solutions offering in order to maintain and extend what we believe to be a significant lead in the marketplace. We believe that it would take a serious potential competitor an extended period of time and investment to build out the tools, solutions, and competencies we possess along with our know-how. In addition to our lead as the first-to-market mover and leader in market share in the regenerative medicine space, we think our biggest competitive advantage falls into our trade secrets and our speed to market with new solutions. Our market leading position enables us to be uniquely tuned to the markets we serve, which enables us to anticipate and quickly react to client needs and market demand. We try to employ the best people in the industry, and we foster the development and implementation of new technologies to maintain that lead. In every aspect possible, we strive to be a 'green,' environmentally responsible company, which we consider to be a competitive advantage.

Strategic Logistics Alliances and Collaborations

We have been successful in establishing strategic distribution alliances around the world, under our "*powered by Cryoport*SM" strategy, as a long-term method of marketing our solutions to the life sciences industry. We have focused our efforts on leading companies in the logistics services industry as well as participants in the life sciences industry. The "*powered by Cryoport*SM" strategy with our alliance partners reflects our solutions being integrated into our alliance partner's services.

Cryoport now supports the three largest integrators in the world, FedEx, DHL and UPS, with its advanced cryogenic logistics solutions for the life sciences industry and for logistics support. To support each integrator's marketing efforts, we operate with each independently and confidentially in support of each company's respective strategy.

FedEx. Since January 2013, we have had a master agreement with Federal Express Corporation ("FedEx") the FedEx Agreement provides FedEx with a non-exclusive license and right to use a customized version of our Cryoportal® Logistics Management Platform for the management of shipments made by FedEx customers. The FedEx Agreement was last amended in December 2018 to extend its term through December 31, 2019, with the intent to develop a new and updated multiyear agreement. Under our FedEx Agreement, we provide frozen shipping logistics services through the combination of our purpose-built proprietary technologies and turnkey management processes. FedEx markets and sells Cryoport's services for frozen temperature controlled cold chain transportation as its FedEx® Deep Frozen Shipping Solution on a non-exclusive basis and at its sole expense. As part of the solution, Cryoport has developed a FedEx branded version of our Cryoportal® Logistics Management Platform, which is "*powered by cryoport*SM" for use by FedEx and its customers, giving them access to the full capabilities of our cloud-based logistics management software platform.

DHL. Since June 2014, through a master agreement with LifeConEx, a part of DHL Global Forwarding ("DHL"), which automatically renews for successive one-year periods, we have provided DHL with cold chain logistics offerings to its life sciences and healthcare customers with Cryoport's validated cryogenic solutions. DHL offers Cryoport's cryogenic solutions through its worldwide Thermonet network of Certified Life Sciences Stations under the DHL brands as "*powered by cryoport*SM". In addition, DHL's customers have direct access to our cloud-based order entry and tracking portal to order Cryoport Express® Solutions and receive preferred DHL shipping rates and discounts. Our proprietary logistics management platform, the Cryoportal®, is integrated with DHL's tracking and billing systems to provide DHL life sciences and healthcare customers with a seamless way of accessing critical information regarding shipments of biological material worldwide.

UPS. Since October 2014, United Parcel Services, Inc. ("UPS") has been a distributor, under our "*powered by cryoport*SM" strategy, by entering into an agreement with UPS Oasis Supply Corporation, a part of UPS, whereby UPS offers our validated and comprehensive cryogenic solutions to its life sciences and healthcare customers on a global basis. Under this agreement, UPS customers have direct access to our proprietary Cryoportal® Logistics Management Platform, which is integrated with UPS's tracking and billing systems, to provide UPS life sciences and healthcare customers with a seamless way to enter orders and access critical information regarding shipments of biological material worldwide.

We also have relationships using our "*powered by cryoport*SM" strategy with the following alliance partners:

McKesson Specialty Health, a division of McKesson Corporation. In February 2018, we announced a strategic collaboration with McKesson Specialty Health. Adding Cryoport's integrated cold-chain capabilities and near real-time monitoring, the McKesson and Cryoport collaboration provides an end-to-end solution for complex products which require high-touch patient access and adherence support as well as temperature controlled product transportation. McKesson Specialty Health works together with stakeholders across the healthcare delivery system to preserve and strengthen specialty care. Cryoport's solutions coupled with McKesson's end-to-end patient access and support services are focused on helping patients avoid delays in treatment through accelerated patient on-boarding, prior authorizations, end-user training and comprehensive adherence and educational support programs.

World Courier, a part of AmerisourceBergen. In July 2018 we announced World Courier's integration of Cryoport's full suite of temperature controlled solutions into its global network. World Courier is a global specialty logistics company that designs world-class supply chain programs. The integration allows Cryoport's Chain of Compliance™ solutions availability to World Courier clients. The integrated platform combines the strengths of both the Cryoport and World Courier systems to their respective biopharmaceutical clients, allowing each client to proactively minimize risks to their cell and gene therapies through the entire biopharma supply chain in order to maintain the efficacy of their valuable commodities. Our integrated solutions will be offered through World Courier's global network of more than 140 company-owned offices operating across 50 countries, as well as directly through Cryoport's business development team.

Be The Match BioTherapies®. **I**n October 2018, we announced a strategic partnership with Be The Match BioTherapies to deliver end-to-end supply chain services to the cell and gene therapy industry. Be The Match BioTherapies is the only cell and gene therapy solutions provider with customizable services to support the end-to-end cell therapy supply chain. Backed by the industry-leading experience of the National Marrow Donor Program/Be The Match, and a research partnership with the CIBMTR® (Center for International Blood and Marrow Transplant Research®), the organization designs solutions that advance cell and gene therapies in any stage of development. By pairing Cryoport's expertise in temperature controlled logistics with Be The Match BioTherapies' expertise in apheresis center onboarding and management, case management and logistics, clinical research, and outcomes data collection and analysis, the two organizations will offer full end-to-end supply chain and outcomes support for companies developing and delivering autologous and allogeneic cell and gene therapies. An important part of the agreement is to integrate Be The Match BioTherapies' MatchSource® cell therapy supply chain software and Cryoport's Cryoportal® Logistics Management Platform. The outcome is a platform that manages more cell therapy products than any other solution in the marketplace, enabling cell and gene therapy companies to more rapidly discover, develop and deliver next-generation therapies. Our collaboration will support both organizations' efforts to standardize critical elements of the cell therapy supply chain, as well as processes in apheresis and transplant center networks.

Cryoport's Positioning in the Life Sciences Industry

Life sciences technology advancements are expected to have a significant impact on global society over the next 25 years. The industry is growing in a way where research and manufacturing pipelines span across the globe. This also increases the need to mitigate supply chain risks, especially for cellular-based therapies/products and other life sciences commodities today and tomorrow.

Over the past several years, Cryoport has assumed the leadership position in supporting the rapidly growing regenerative medicine market with its temperature controlled logistics solutions. According to the Alliance for Regenerative Medicine's State of the Industry Briefing in January of 2019, there were 906 regenerative medicine companies worldwide, conducting a total of 1,028 clinical trials of which 92 were in Phase III as of the end of 2018. The total targeted enrollment of patients in regenerative medicine clinical trials word-wide were 59,757 patients. Total global financings in this space were $13.3 billion, up 73% compared to 2017. The FDA stated that by 2025 it predicts

that it will be approving 10 to 20 cell and gene therapy products per year. This data further amplifies the significant position regenerative medicine is taking in the development of new therapies and products in the life sciences industry.

The total cold chain logistics market for the life sciences industry has historically grown faster per annum than the total life sciences logistics market. For 2018, global cold chain logistics spending, overall, was forecasted to be $15.0 billion; with approximately $3.4 billion in spending supporting global clinical trials. By 2022, the global life sciences cold chain logistics market is forecast to grow to $18.6 billion for a 24% increase. The majority of the growth is a result of the recent advancements in the development of biologics and cell-based therapies. As a result, scientists, intermediaries, and manufacturers require means for cryogenically transporting and storing their work and products, such as CAR T-cell therapies, where temperatures must be maintained below the “glass point” (generally, below minus 136). In addition, our Cryoport Express® C3™ solution was specifically developed to address the front-end logistics of some autologous therapies that transport whole blood to the point of manufacturing, requiring a stable 2-8 temperature range. It is more robust than any competing shipper today with its exacting and reliable design. These solutions incorporate our Cryoportal® Logistics Management Platform and the SmartPak II™ Condition Monitoring System, giving our clients a seamless logistics record of all vital information for each therapy shipped on a worldwide basis.

We think Cryoport is appropriately positioned as a life sciences services company focused on providing solutions such as temperature controlled logistics, bioservices and end-product fulfillment, to the regenerative medicine, reproductive medicine and animal health markets. Our differentiated products and services enable our clients to ship, store and deliver biologics and other commodities required to remain in a continual cryogenic or temperature controlled state, such as CAR-T therapies and other cell therapies, gene therapies, embryos for reproductive medicine, vaccines, and stem cells. Our standard setting Chain of Compliance™, which includes vital analytics, including ‘chain-of-condition’ and ‘chain-of-custody’ information, in a single data stream, allows our clients continuous vigilance over their commodities to minimize risk and maximize success through traceability of the equipment used and the processes employed in supporting each client’s therapy or other commodity.

Life Sciences Customer Agreements

Our clients include life sciences companies and institutions that have engaged us to support their clinical studies and trials as well as the global distribution of their commercial biologics, vaccines and other products with our temperature controlled logistics and bioservices solutions. Our most significant agreements are as follows:

Zoetis. In December 2012, we signed an agreement with Pfizer Inc. relating to Zoetis Inc. (formerly the animal health business unit of Pfizer Inc.) pursuant to which we are now managing all cryogenic shipments of Zoetis’ key poultry vaccines. Under this arrangement, we provide on-site logistics personnel and our Cryoportal® Logistics Management Platform to manage shipments from the Zoetis manufacturing site in the United States to domestic customers as well as various international distribution centers. The Company manages Zoetis’ total fleet of shippers used for this purpose, including liquid nitrogen shippers. In July 2013, the Agreement was amended to expand Cryoport’s scope to manage all logistics of Zoetis’ key frozen poultry vaccine to all Zoetis’ international distribution centers as well as all domestic shipments. In October 2013, the Agreement was further amended to further expand Cryoport’s role to include the logistics management for a second poultry vaccine. In September 2015 and May 2018, the Agreement was further amended and extended through March 2019, subject to certain termination and extension provisions. We are currently in discussions with Zoetis to further extend and amend the agreement.

Novartis. In May 2017, we signed an agreement with Novartis Inc. to manage the global clinical and commercial shipments of its CAR T-cell therapies, including the recently commercial launch of CAR T-cell therapy, Kymriah® (CTL019), for children and young adults with B-cell ALL that is refractory or has relapsed at least twice. On August 30, 2017 Novartis received from the FDA the first ever CAR T-cell approval for the first indication of Kymriah®. Subsequently on May 1, 2018 the FDA approved Kymriah® for the treatment for adult patients with relapsed/refractory DLBCL. Following U.S. approvals, on August 27, 2018 the EU approved Kymriah® for both ALL and DLBCL. Most recently Kymriah® received Canadian approval on September 6, 2018 and Australian approval on December 20, 2018. Novartis has treated patients in 11 countries and has over 500 employees dedicated to the support of Kymriah®. Under our agreement with Novartis, Cryoport provides cryogenic packaging and shipping using its Cryoport Express® Shippers, monitoring using its SmartPak II™ Condition Monitoring System technology and communications and information recording using its Cryoportal® Logistics Management Platform to manage

shipments from the Novartis manufacturing sites to their clinical and commercial sites for patient administration globally.

Kite/Gilead. In July 2017, we signed an agreement with Kite Pharmaceuticals Inc. (a Gilead company) to manage the clinical and commercial shipments of its CAR T-cell therapy, Yescarta® (Axicabtagene Ciloleucel). On October 18, 2017, Yescarta® became the first CAR-T therapy approved by the FDA for the treatment of adult patients with relapsed or refractory large B-cell lymphoma. Additionally, Yescarta® received EU approval on August 27, 2018 for relapsed/refractory DLBCL and PMBCL. As of January 31, 2019, Kite had 68 cancer centers authorized to treat patients in the United States and 12 certified in the EU. Through these centers nearly 700 patients have been treated with Yescarta®. Under our agreement with Kite, Cryoport provides cryogenic packaging and shipping using its Cryoport Express® Shippers, monitoring using its SmartPak II™ Condition Monitoring System technology and communications and information recording using its Cryoportal® Logistics Management Platform to manage shipments from the Kite manufacturing sites to their clinical and commercial sites of patient administration globally.

Cryoportal® Logistics Management Platform

The Cryoportal® Logistics Management Platform records and retains a fully traceable and documented history of all serialized equipment and components as part of our Chain of Compliance™ solution, as well as “chain-of-condition” and “chain-of-custody” for every shipment, helping ensure that quality, safety, efficacy, and stability of shipped commodities are maintained throughout the process. Additionally, the Cryoportal® is used by Cryoport, our clients and business partners to automate the entry of orders, documentation preparation, to assist in managing logistics operations and to reduce administrative costs typically provisioned through manual labor relating to order-entry, order processing, preparation of shipping documents and back-office accounting. It is also used to support the high level of customer service expected by the life sciences industry. Certain features of the Cryoportal® are designed to reduce operating costs and facilitate the scaling of Cryoport’s business. Examples of these features include automation of order entry, development of key performance indicators (“KPI’s”) to support efforts for continuous process improvements in our business, and programmatic exception monitoring to detect and sometimes anticipate delays in the shipping process, often before the customer or the shipping company is aware of them. These features offer significant value to our customers in terms of cost avoidance and risk mitigation.

The Cryoportal® Logistics Management Platform also serves as the communications center for the management, collection and analysis of SmartPak II™ Condition Monitoring System data collected in near real time from the field. Collected data is converted into information reports containing valuable and actionable information that becomes the quality control or "pedigree" of the shipment. This information can be utilized by Cryoport to provide valuable feedback in near real time to our clients relating to their shipments. Additionally, our SmartPak II™ Condition Monitoring System provides the ability to apply Quality by Design fundamentals to our logistics solutions enabling intervention and risk mitigation capabilities to be employed.

The Cryoportal® Logistics Management Platform has been developed as a "carrier-agnostic" system, allowing clients and the Cryoport Logistics Management team to work with any combination of integrators, freight forwarders, couriers and/or brokers depending on the specific requirements and/or client preferences. To increase operational efficiencies, the Cryoportal® Logistics Management Platform is integrated with the tracking systems of FedEx, DHL and UPS and other key logistics providers.

The Cryoportal® was developed for time-and temperature-sensitive shipments that are required to be maintained at specific temperatures, beginning with the most demanding cryogenic temperatures (-150) and moving upward to ambient (20-25) to ensure that the shipped samples/commodities/products are not subject to degradation or out of designated "safe" range temperatures. While our current focus is on cryogenic (-150) as well as 2-8 logistics within the life sciences industry, the use of the Cryoportal® Logistics Management Platform can and may be extended into other temperature controlled ranges for the life sciences. To our knowledge, the Cryoportal® Logistics Management Platform is unique to temperature controlled logistics in the life sciences industry. It is robust and has considerable capabilities. We frequently receive favorable feedback about the Cryoportal® from our clients and partners.

Cryoport Express® Shippers

Our Cryoport Express® Shippers are a family of shippers engineered specifically to serve the life sciences industry. Engineering of these devices, which are made up of proprietary packaging, dewar vacuum flasks, near real time electronic monitoring systems and engineered shock absorbing overpackaging requires multiple and varied engineering disciplines. Each Cryoport Express® Shipper is ISTA (International Safe Transit Association) validated and IATA, UN, International Civil Aviation Organization ("ICAO") compliant. Cryoport Express® Shippers are the highest level, most comprehensive logistics shippers serving the life sciences industry.

Cryogenic Cryoport Express® Shippers employ liquid nitrogen vapor shipper vacuum flask tanks capable of maintaining cryogenic temperatures of minus 150 or below for a dynamic shipping period of 10 days or more. A dry vapor cryogenic shipper is a device that uses liquid nitrogen contained inside a vacuum insulated vessel (vacuum flask tank), which serves as a refrigerant to provide stable storage temperatures below minus 150 . Our Cryoport Express® Shippers are designed to ensure that there is no pressure build up as the liquid nitrogen evaporates. We have

developed a proprietary retention system to ensure that liquid nitrogen stays inside the vacuum container, which allows the shipper to be designated as a dry vapor shipper meeting IATA requirements. Biological or pharmaceutical specimens are stored in a specimen chamber, referred to as a "well" inside the container and refrigeration is provided by gas evolving from the liquid nitrogen entrapped within the proprietary retention system. Specimens that may be transported using our cryogenic shipper include: live cells, scientific or pharmaceutical commodities such as cancer therapies, vaccines, diagnostic materials, semen, eggs, embryos, infectious substances, and other commodities that require continuous exposure to cryogenic temperatures, i.e., temperatures below minus 150 .

An important feature of our Cryoport Express® Shippers is their compliance with the stringent packaging requirements of IATA Packing Instructions 602 and 650, respectively. These specifications include meeting internal pressure (hydraulic) and drop performance requirements. Under IATA guidelines, Cryoport Express® Shippers are classified as "Non-hazardous." Dry ice and liquid nitrogen are classified as "Dangerous Goods." Our shippers are also in compliance with International Civil Aviation Organization ("ICAO") regulations that prohibit egress of liquid nitrogen residue from the shipping packages. The ICAO is a United Nations organization that develops regulations for the safe transport of dangerous goods by air.

We currently offer dry vapor shippers with varying storage capacities, including our Cryoport Express® Standard Shipper, Cryoport Express® High Volume Shipper, Cryoport Express® Sliderite® Shipper, Cryoport Express® CXVC1 Shipper and Cryoport Express® CryoMax™, which has a capacity of 36,400 2.0 ml vials. Our Cryoport Express® Shippers are composed of aluminum (aircraft-grade) material, with an engineered well for holding high value biologics or other materials in its inner chamber.

Cryoport Express® Dry Vapor Shippers

Cryoport Express® Dry Vapor Shippers are lighter than liquid nitrogen flasks. They are engineered units that consist of dewar flasks, electronics, and engineered outer packaging. Cryoport Express™ Shippers include re-usable dry vapor liquid nitrogen storage containers (vacuum flask tanks) that, we believe, combine the best features of life sciences packaging, cryogenics science and vacuum insulation technology. Cryoport Express® Dry Vapor Shippers are composed of aluminum metallic dewar flasks, with wells for holding the biological material in the inner chambers. The dewar vessel is a device in which the conduction, convection and radiation of heat are reduced as much as possible giving it the capability of maintaining its contents at a near-constant temperature over relatively long periods of time. The inner chamber of the shippers is surrounded by a high surface, low-density material which retains the liquid nitrogen in-situ by absorption, adsorption, and surface tension. Absorption is defined as the taking up of matter in bulk by other matter, as in the dissolving of a gas by a liquid, whereas adsorption is the surface retention of solid, liquid or gas molecules, atoms or ions by a solid or liquid. This material absorbs liquid nitrogen relatively rapidly, while providing our shippers with hold times and capacities to transport biological materials safely and conveniently. The specimen-holding chamber has a primary cap to enclose the specimens/commodities, and a removable and replaceable secondary cap to further enclose the specimen/commodity-holding container and to contain the liquid nitrogen dry vapor. The entire dewar vessel is then wrapped in a plurality of insulating and cushioning materials and placed in an outer packaging that been engineered specifically for absorbing shock and the challenges encountered in transportation. This outer packaging also houses the Smart Pak II™ Condition Monitoring System which communicates with the Cryoportal™ Logistics Management Platform.

Cryoport Express® C3™ Shippers

Non-cryogenic, temperature controlled Cryoport Express™ Shippers employ sourced components that are modified and assembled to meet the requirements of the task for which they were designed. An example is the Cryoport Express™ C3™ Shipper.

Cryoport Express® C3™ Shippers are designed to maintain a controlled temperature range of 2°-8°C for up to 96 hours under dynamic shipping conditions. These reusable shippers are offered as part of our *Cryoport. Certified. Cool.* or *C3™* Solution. It includes our Cryoport's SmartPak II™ Condition Monitoring System and the Cryoportal® Logistics Management Platform. This solution was introduced to support the growing need in the regenerative therapy market and to enable our clients to utilize our solutions for both, the transportation of leukapheresis and apheresis blood products as well as the manufactured autologous cellular-based immunotherapies.

Cryoport Express® Shipper Summary

We believe Cryoport Express® Shippers used in Cryoport Express® Solutions do the best job in the life sciences industry to mitigate risks. We believe that our Cryoport Express® Solutions are the most advanced and most cost-effective temperature controlled logistics solutions available to the life sciences industry. We believe Cryoport Express® Solutions satisfy client needs and scientific and regulatory requirements relating to each shipment of time- and temperature-critical, frozen and/or refrigerated transport of biological materials, such as stem cells, cell lines, pharmaceutical clinical trial samples, gene biotechnology, infectious materials handling, animal and human reproduction markets. We believe that due to our proprietary technology, innovative design and systems, our Cryoport Express® Shippers are less prone to losing critical functional hold time than competing products.

Cryoport Express® SmartPak II™ Condition Monitoring System

For our clients, condition monitoring is a high-value feature as it is an effective and reliable method to determine that their commodity/product was not damaged and did not experience degradation during shipment due to temperature fluctuations or other undesirable conditions. Our SmartPak II™ Condition Monitoring System is designed to track the key aspects of each shipment that could affect the quality and/or timing of delivery of the commodity/product to its intended destination. This includes near real-time tracking using GPS, cellular and Wi-Fi technologies, technology monitoring of internal and external temperatures, humidity, barometric pressure, shock, orientation of the shipper, as well as exposure to light as a measure of security breaches, compromised packaging or shipper openings during transit. Our exacting temperature sensors are positioned within our Cryoport Express® Shippers to record the most accurate readings. The resultant temperature mapping includes both the temperature inside the chamber (which is closest to the actual biomaterial) and the external temperature. Our advanced SmartPak II™ Condition Monitoring System is engineered to work in tandem with our Cryoportal® Logistics Management Platform, enabling predictive and proactive monitoring of materials shipped. The data collected and resulting analytics, combined with the mapping of shipment check-in points, provide a holistic view of the complete shipping process. At the client's election, shipments can have a full 'chain-of-custody', chain-of-condition, and chain-of-identity along with other data monitoring analytics. Archival storage is available for every shipment.

Chain-of-Condition, Chain-of-Custody, and Chain-of-Identity

Chain-of-Condition information is essential for many life sciences customers. Our monitoring services are provided by our SmartPak II™ Condition Monitoring System, which provides data on the condition of our Cryoport Express® Shipper and the conditions in which commodities/products are being shipped, which is critical for temperature-sensitive biologics.

Chain-of-Custody relates to the traceability of which party has the physical custody of the Cryoport Express® Shipper during each segment of transport. With the assistance of an overlay on carrier check-ins and our algorithms, our SmartPak II™ Condition Monitoring System supplies a data monitor that reports chain-of-custody information, which is another essential information element required for temperature-sensitive biologics.

10

Chain-of-Identity refers to the traceability of the identity of each client's or patient's therapy that is inside of the Cryoport Express® Shipper, which can be tracked through the Cryoportal® Logistics Management Platform

The Cryoportal® Logistics Management Platform acts as the data repository for all shipment and condition information. Our customers can access their information via the cloud-based Cryoportal® Logistics Management Platform through an internet connection anywhere in the world and all data is securely retained for quality assurance and regulatory purposes.

Chain of Compliance™

During 2018 we introduced Cryoport's Chain of Compliance™ solution, as a new industry standard. Cryoport's Chain of Compliance™ goes beyond Chain of Condition and Chain of Custody by providing traceability of the equipment and processes supporting each client or patient therapy. The Chain of Compliance™ enables Cryoport to recall every transport that an individual Cryoport Express® Shipper has taken, the client it supported, the commodity transported, it's performance during transit, and each step that Cryoport performs before the shipper is put back into service. This includes container performance and requalification history, commodity history, courier handling and performance history, calibration history, and correlation competencies that can link in field events to equipment performance. A review of these requirements are as follows:

1. **Container performance history**: All transportation equipment should have a validated hold time standard that can change over time for multi-use equipment. Data supporting an accurate calculation of the hold time of a cold chain container should include the nitrogen evaporation rate, liquid nitrogen capacity, vacuum integrity, dynamic hold time, as well as the actual in field temperature, humidity, shock, and orientation data.

2. **Commodity history:** In addition to the performance of the equipment utilized for a given shipment, a complete historical record of the contents shipped in any given container should be tracked such that it can be certified that a given piece of equipment has only been used for the distribution of non-infectious human materials.

3. **Container (re)qualification history:** Additionally, accurate records should be maintained as to the requalification or testing of the performance of the equipment to be utilized. These records should also include any repairs or maintenance performed on the equipment, any deviations or damage during use, as well as any contamination or sterility issues over the entire historical usage of the equipment.

4. **Calibration history:** All calibration data for any electronic components of a given package should be traceable back to the equipment. This should include thermocouple calibration or validation data, battery performance, software or firmware updates by date and version, and serialized accessories that are archived by part number.

5. **Correlation:** Lastly, the ability to cross reference in-field handling events including shock, damage, delays, orientation, and anti-tamper competencies to the impact on the commodity shipped is a key requirement and should include the ability to cross reference the historical custody of the container. This should include all locations receiving the container, as well as the courier for freight partners who were responsible for the delivery of the container from origin to destination.

The main reason that the FDA and other regulatory bodies are interested in Cryoport's Chain of Compliance™ is that it provides the ability to collect, interpret, and leverage comprehensive data enabling a significantly more intelligent supply chain. Rather than reactively trying to determine what has gone wrong after multiple failures, it becomes possible to take a proactive approach. Moreover, we believe that effective implementation provides historical traceability of logistics processes, equipment, and third party support entities, which enables the critical assessment of the complete supply chain to minimize failures and risk.

Cryoport Express® Analytics

Cryoport Express® Analytics information is captured by the Cryoportal® Logistics Management Platform to provide us and our clients access to important information from the shipments, which and assist in the management of our clients' logistics needs. We use anonymized information to support planning for future features of our solutions offering. Analytics is a term used by IT professionals to refer to performance benchmarks or KPI's that management utilizes to measure performance against desired standards. Examples for analytics tracked through the Cryoportal® include time-based metrics for order processing time and on-time deliveries by our shipping partners, as well as profiling shipping lanes to determine average transit times and predicting potential shipping exceptions based on historical metrics. Our analytics are utilized internally to proactively improve our client services and develop new offerings. Cryoport Express® Analytics information is also used by Cryoport Consulting to support some of its work.

Logistics Expertise, Consulting and Support

Cryoport's client services professionals provide 24/7/365 live logistics and monitoring services with specialized knowledge in the domestic and global logistics of life sciences material requiring controlled temperatures. Cryoport logistics professionals have validated shipping lanes in and out of well over 100 countries to ensure shipments maintain temperatures and arrive securely and on time.

Cryoport Consulting provides consulting services to assist life sciences companies in developing strategies for global cold chain logistics management and contingency options to protect their valuable, and often irreplaceable, biological commodities. Cryoport Consulting addresses the demand created by the worldwide advances in cellular based therapies, including immunotherapies, stem cells and CAR T-cells. Cell-based immunotherapies are driving broad shifts and challenges for the life sciences industry, including how to obtain, properly store and carefully transport the growing number of new, individualized, temperature sensitive therapies. Improper temperature maintenance or temperature excursions during any portion of a logistics cycle can adversely affect the viability of these biologically based commodities. Consequently, strategic, global logistics planning for cryogenic cold chain solutions has taken on a strategic importance to the life sciences industry and a rapidly growing demand for consulting expertise.

Other Development Activities

We continue to build out our ecosystem through partnerships and alliances. We are, also, continuing our research, engineering and development efforts to continue to advance our technology applications for temperature controlled logistics and bioservices. We are further expanding the functionality of our Cryoportal® Logistics Management Platform and will advance our Smart Pak II™ Condition Monitoring technology to ensure our continued leadership and the highest level of effectiveness and efficiency in the temperature controlled logistics for the life sciences industry.

Government Regulation

We are subject to numerous domestic federal, state and local laws and regulations and the laws and regulations of global jurisdictions relating to matters regarding shipments, customs, import, safe working conditions, manufacturing practices, environmental protection and disposal of hazardous or potentially hazardous substances. We may incur significant costs to comply with such laws and regulations now or in the future.

The shipping of biologic products, biologic commodities, diagnostic specimens, infectious substances and dangerous goods, whether via air or ground, falls under the jurisdiction of many state, federal and international agencies. The quality of the packaging that protects a product or biologic commodity determines whether or not it will arrive at its destination in a satisfactory condition. Currently the most stringent regulations we are subject to are the dangerous goods regulations. Many of the regulations for transporting dangerous goods in the United States are determined by international rules formulated under the auspices of the United Nations. Dangerous goods are usually one-time shipments and are not a part of our regular recyclable Cryoport Express® service. When we ship dangerous goods, we follow strict and stringent guidelines.

The International Civil Aviation Organization (“ICAO”) is the United Nations organization that develops regulations (Technical Instructions) for the safe transport of dangerous goods by air. If shipment is by air, compliance with the rules established by the International Air Transport Association (“IATA”) is required. IATA is a trade association made up of airlines and air cargo couriers that publishes annual editions of the IATA Dangerous Goods Regulations. These regulations interpret and add to the ICAO Technical Instructions to reflect industry practices. Additionally, the Centers for Disease Control (“CDC”) has regulations (published in the Code of Federal Regulations) for interstate shipping of specimens.

Our Cryoport Express® Shippers meet Packing Instructions 602 and/or 650 and are certified for the shipment of Class 6.2 Dangerous Goods per the requirements of the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air and IATA. Our present and planned future versions of the Cryoport SmartPak II™ Condition Monitoring Systems will likely be subject to regulation by the Federal Aviation Administration (“FAA”), Federal Communications Commission (“FCC”), Food and Drug Administration (“FDA”), IATA and possibly other agencies which may be difficult to determine on a global basis.

Manufacturing and Raw Materials

Manufacturing. We source components for our Cryoport Express® Shippers from multiple suppliers that manufacture to our engineering specifications using in part proprietary technology and know-how to mitigate supply chain risks. We also use “of-the-shelf” products, which we may modify to meet our requirements. For some components, however, there are relatively few alternate sources of supply and the establishment of additional or replacement suppliers may or may not be accomplished immediately. Should this occur, we endeavor to mitigate risk by an increase in our inventory level to cover our total forecasted demand giving us time to secure additional qualified suppliers. Some of our Cryoport Express® Shippers also use components that were formerly manufactured in-house and that are now outsourced. The central electronic device used in our Smart Pak II™ Condition Monitoring System have been acquired from a single source with calibration and alterations done by an independent third party.

Our vendor/partner relationships allow us to concentrate on further advancing and expanding our solutions for the life sciences to meet the growing and varied demands for validated temperature controlled logistics in the life sciences industry. We think our current supply structure provides us the opportunity to rapidly scale to support our client's commercialization activities; however, we continue to work to improve our current sourcing and to continue to mitigate risks therein.

Raw Materials. Various common raw materials are used in the manufacture of our shippers and in the development of our technologies. These raw materials are generally available from several alternate distributors and manufacturers. We have not experienced any significant difficulty in obtaining these raw materials.

Patents, Copyrights, Trademarks and Proprietary Rights

In order to remain competitive, we must develop and maintain protection on the proprietary aspects of our technologies. We rely on a combination of patents, copyrights, trademarks, trade secret laws and confidentiality agreements to protect our intellectual property rights.

We currently own eight registered U.S. trademarks and have twenty-two additional trademark applications pending in the U.S. and foreign countries. Five of the pending trademarks are filed under the Madrid Protocol and designate Japan, Australia, Singapore, and the European Union. Our trademarks generally protect the names of our company, products, and key service brands.

Our success depends in part upon our ability to develop proprietary products and technologies and to obtain patent coverage for these products and technologies. We intend to file trademark and patent applications covering any newly developed products, methods and technologies. However, there can be no guarantee that any of our pending or future filed applications will be issued as patents or register as trademarks. There can be no guarantee that the U.S. Patent and Trademark Office or some third party will not initiate an interference proceeding involving any of our pending applications or issued patents. Finally, there can be no guarantee that our issued patents or future issued patents, if any, will provide adequate protection from competition.

Patents provide some degree of protection for our proprietary technology. However, the pursuit and assertion of patent rights involve complex legal and factual determinations and, therefore, are characterized by significant uncertainty. In addition, the laws governing patent issuance and the scope of patent coverage continue to evolve. Moreover, the patent rights we possess or are pursuing generally cover our technologies to varying degrees. As a result, we cannot ensure that patents will issue from any of our patent applications, or that any of its issued patents will offer meaningful protection. In addition, our issued patents may be successfully challenged, invalidated, circumvented or rendered

unenforceable so that our patent rights may not create an effective barrier to competition. We must also pay maintenance fees at set intervals for our patents to not expire prematurely. The laws of some foreign countries may not protect our proprietary rights to the same extent as the laws of the United States. There can be no assurance that any patents issued to us will provide a legal basis for establishing an exclusive market for our products or provide us with any competitive advantages, or that patents of others will not have an adverse effect on our ability to do business or to continue to use our technologies freely. As with all patents, we may be subject to third parties filing claims that our technologies or products infringe on their intellectual property. We cannot predict whether third parties will assert such claims against us or whether those claims will hurt our business. If we are forced to defend against such claims, regardless of their merit, we may face costly litigation and diversion of management's attention and resources. As a result of any such disputes, we may have to develop, at a substantial cost, non-infringing technology or enter into licensing agreements. These agreements may be unavailable on terms acceptable to such third parties, or at all, which could seriously harm our business or financial condition.

With respect to our trademarks, we file and pursue trademark registrations on words, symbols, logos, and other source identifiers that consumers use to associate our products and services with us. Although our registered trademarks carry a presumption of validity, they can be challenged and invalidated and as such, we cannot guarantee that any trademark registration is infallible.

We also rely on trade secret protection of our intellectual property. We attempt to protect trade secrets by entering into confidentiality agreements with employees, consultants and third parties, although, in the past, we have not always obtained such agreements. It is possible that these agreements may be breached, invalidated or rendered unenforceable, and if so, our trade secrets could be disclosed to our competitors. Despite the measures we have taken to protect our intellectual property, parties to such agreements may breach confidentiality provisions in our contracts or infringe or misappropriate our patents, copyrights, trademarks, trade secrets and other proprietary rights. In addition, third parties may independently discover or invent competitive technologies, or reverse engineer our trade secrets or other technology. Therefore, the measures we are taking to protect our proprietary technology may not be adequate.

Customers and Distribution

As a result of growing globalization, including such areas as biologics, biopharma, biotechnology, clinical trials, distribution of biopharmaceutical products and reproductive medicine, the requirement for effective and reliable solutions for keeping clinical samples, pharmaceutical products and other specimen at controlled temperatures takes on added significance due to more complex shipping routes, extended shipping times, custom delays and general logistics challenges. We believe our Cryoport Express® Shippers, our SmartPak II™ Condition Monitoring Systems, the Cryoportal® Logistics Management Platform and our logistics expertise enable us to be well positioned to take advantage of the growing demand for effective and efficient international transport of temperature sensitive life sciences commodities/products resulting from the sensitivity of the commodities/products being shipped and continued globalization, which is a notable trend within the life sciences and biotechnology industries. This is especially the case for the new therapies being developed in the regenerative medicine market, such as CAR-T cell therapies, that require cryogenic temperatures to maintain efficacy.

There was one customer that accounted for 18.2% of revenues during the year ended December 31, 2018. No other single customer generated over 10% of revenues during the years ended December 31, 2018 and 2017.

Our geographical revenues, by origin, for the years ended December 31, 2018 and 2017 were as follows:

	2018	2017
Americas	91.0%	89.0%
Europe, the Middle East and Africa (EMEA)	7.0 %	8.1 %
Asia Pacific (APAC)	2.0 %	3.0 %

Pharmaceutical Clinical Trials. Every United States based pharmaceutical company developing a new drug must seek drug development protocol approval by the Food and Drug Administration ("FDA"). These clinical trials are designed to test the safety and efficacy of the potential new drug/therapy among other things. A significant amount of clinical trial activity is managed by several large Clinical Research Organizations ("CROs").

In connection with the clinical trials, due to globalization, companies can enroll patients from all over the world and may need to regularly submit a blood or other specimen at the local hospital, doctor's office or laboratory. These samples are then sent to specified testing laboratories, which may be local or in another country. The testing laboratories will typically set the requirements for the storage and shipment of blood specimens. In addition, therapies used by the patients may require frozen shipping to the sites of the clinical trials. While both domestic and international shipping of these specimens may be accomplished using dry ice today, international shipments especially present several problems, as dry ice, under the best of circumstances, can only provide freezing for one to two days in

the absence of re-icing (which is quite costly). Because shipments of packages internationally can take longer than one to two days or be delayed due to flight cancellations, incorrect destinations, labor problems, ground logistics, customs delays and safety reasons, dry ice is not always a reliable and/or cost-effective option. Clinical trial specimens are often irreplaceable because each one represents clinical data at a prescribed point in time, in a series of specimens on a given patient, who may be participating in a trial for years. Sample integrity during the shipping process is vital to retaining the maximum number of patients in each trial. Our shippers are ideally suited for this market, as our longer hold time ensures that specimens can be sent over long distances with minimal concern that they will arrive in a condition that will cause their exclusion from the trial. There are also many instances in domestic shipments where Cryoport Express® Shippers will provide higher reliability and be cost effective.

Furthermore, the IATA requires that all airborne shipments of laboratory specimens be transmitted in either IATA Instruction 650 or 602 certified packaging. We have developed and obtained IATA certification of our Cryoport Express® System, which is ideally suited for this market, due to the elimination of the cost to return the reusable shipper.

Biotechnology and Diagnostic Companies. The biotechnology market includes basic and applied research and development in diverse areas such as stem cells, gene therapy, DNA tumor vaccines, tissue engineering, genomics, and blood products. Companies participating in the foregoing fields rely on the frozen transport of specimens in connection with their research and development efforts, for which our Cryoport Express® Shippers are ideally suited.

Cell Therapy Companies. Rapid advancements are underway in the research and development of cell based therapies, which involve cellular material being infused into a patient. In allogeneic cell therapies, the donor is a different person than the recipient of the cells. Autologous cell therapy is a personalized therapeutic intervention that uses an individual's cells, which are cultured and expanded outside the body, and reintroduced into the donor. Once cells are manufactured into a cellular therapy, in either case, they must be shipped cryogenically for which our Cryoport Express® Shippers are ideally suited.

Central Laboratories. With the increase and globalization of clinical studies and trials, logistics has become more complex and ensuring sample integrity has become more challenging. International courier costs are now consuming a significant portion of global protocol budgets. We believe laboratories performing the testing of samples collected during the conduct of these global multi-site studies are looking for reliable state-of-the-art logistics solutions.

Pharmaceutical Distribution. The current focus for the Cryoport Express® System also includes the area of pharmaceutical distribution. There are a significant number of therapeutic therapies currently or anticipated soon to be undergoing clinical trials. After the FDA approves them for commercial marketing, it will be necessary for the manufacturers to have a reliable and economical method of distribution to the physician who will administer the product to the patient. It is likely that the most efficient and reliable method of distribution will be to ship a single dosage to the administering physician. These therapies are typically identified to individual patients and therefore will require a complete tracking history from the manufacturer to the patient. The most reliable method of doing this is to ship a unit dosage specifically for each patient. If such therapies require maintenance at frozen or cryogenic temperatures, each such shipment will require a cryogenic shipping solution. Cryoport can provide the technology to meet this need.

Distribution of Vaccines and other Products. There are a variety of vaccines and other drugs that require distribution at frozen or cryogenic temperatures that we can serve with our temperature controlled logistics solutions. This includes both the human and animal health markets.

Fertility Clinics and In Vitro Fertilization (“IVF”). Maintaining cryogenic temperatures during shipping and transfer of in vitro fertilization specimens like eggs, sperm, or embryos is critical for cell integrity in order to retain viability, stabilize the cells, and ensure reproducible results and successful IVF treatment. There are approximately 480 fertility clinics in the U.S. and 3,300 fertility clinics worldwide. Based on third-party market research, the global fertility services market is projected to experience growth at a CAGR of approximately 8.5% through 2023. Around 1.5 million ART (assisted reproductive technology) cycles are performed globally each year. We believe that our solutions for this market, branded as CryoStork services, are very compelling and will allow us to further build out our leadership position.

Sales and Marketing

We currently have a sales and marketing team led by our Chief Commercial Officer that drives our business development, program management, consulting, marketing and other related activities. Given the global nature of our business, we plan to continue to broaden our sales and marketing reach in all corners of the world with emphasis on the Americas, EMEA and the Asia-Pacific regions. We plan to hire additional sales and marketing personnel globally and implement marketing initiatives intended to increase awareness of Cryoport and its advanced temperature controlled solutions serving the life sciences industry.

Industry and Competition

Our products and services are sold into a rapidly growing segment of the temperature controlled logistics industry focused on the temperature sensitive packaging and shipping of biologics and other life sciences commodities. This growth is fueled in part by the advancements in biology and continued globalization, and is expected to continue to increase even more in the future as more domestic and international biotechnology firms expand clinical trials and introduce pharmaceutical products into the market that require continuous transportation and storage at cryogenic temperatures. This principle also applies to the animal health and reproductive medicine markets. We believe these advances will require a greater dependence on passively controlled temperature transport systems (i.e., systems having no external power source). In addition, we expect that industry standards and regulations will be introduced globally, requiring more comprehensive tracking and validation of shipping temperatures.

We believe that advancements and growth in the following markets have resulted in the need for increased reliability, efficiencies and greater flexibility in the temperature sensitive segment of the life sciences logistics and supply chain market:

· biopharmaceuticals

· cell-based therapies

· gene therapy

· stem cell technology

· cell lines

· vaccines

· biopharmaceutical product distribution

· clinical trials, including transport of tissue culture samples

· diagnostic specimens

· infectious sample materials

· inter/intra-laboratory diagnostic testing

· temperature-sensitive specimens

· biological samples, in general

· environmental sampling

· reproductive material for IVF

· Animal Health

Cryoport's solutions are comprehensive and integrated for maximum reliability, economy and total effectiveness. Cryoport's total logistics solution enables life sciences companies to utilize the superior liquid nitrogen dry vapor technology without having to make capital investments or developing in-house logistics expertise and systems by offering a complete solution, which includes the cloud-based Cryoportal® logistics management platform, the SmartPak II™ Condition Monitoring systems and our 24/7/365 logistics support. Cryoport allows the clients to outsource logistics and focus on its core competencies while maintaining visibility of all logistics related information.

Within our targeted biotechnology and life sciences markets there is limited known direct competition to our Cryoport Express® Solutions. We compete with liquid nitrogen and dry ice solutions effectively by use of the improved and

integrated hardware and software technology in our products including our comprehensive logistics management software platform, the Cryoportal® and through the use of our service-enabled business model. Our Cryoport Express® Solutions provide simple and cost-effective solutions for temperature controlled transport of biologics and other life sciences materials. The Cryoportal® assists with the management, scheduling and shipping of the Cryoport Express® Shippers, removing the burdens associated with other methods.

Factors that we believe give us a competitive advantage is our comprehensive and tested business model that fully integrates our Cryoport Express® shippers with our Cryoportal® Logistics Management Platform and SmartPak II™ Condition Monitoring System into a seamless shipping, tracking and monitoring solution. In addition, we have a first-mover advantage, supporting over 300 clinical trials in the regenerative medicine space. Our reputation, combined with over a decade of know-how and technology, provides us with significant competitive advantages. Since our inception, we have experienced minimal client attrition.

Companies that offer services that could be considered competitive to certain components of our Cryoport Express® solutions include Thermo Fisher Scientific Inc., specialty couriers, such as World Courier Group, Inc., Quick Life Science Group and Marken Limited and SAVSU Technologies, Inc. In addition, life science companies can develop their own inhouse temperature controlled logistics solutions by sourcing containers and data loggers and developing software, systems and procedures to cover their logistics needs. However, we have not identified competition that offers a solution that is as comprehensive as our solutions are and has been proven in the global market to the same extent as our solutions have.

Engineering and Development

Our research, development and engineering efforts are focused on continually investigating new technologies that can improve our services and improving the features of our Cryoport Express® Solutions, which includes our cloud-based Cryoportal® Logistics Management Platform, Cryoport Express® Shippers, secondary packaging solutions, our SmartPak II™ and other condition monitoring systems. These efforts are expected to lead to the introduction of additional features, including shippers of varying sizes and for various temperature ranges, based on market requirements, further advanced informatics and improved monitoring systems. We are continuously researching alternative and new technologies, lower cost materials, utilization of higher volume assembly methods, enabling technologies, etc. that will make it practical to provide a wider range of Cryoport Express® Solutions.

Alternative technologies to liquid nitrogen in dry vapor form, alternative materials and/or new information and communication technologies may be used in the future to expand our potential market for our Cryoport Express® Solutions.

Cryoport's Quality Assurance Program

Cryoport's Quality System uses ISO 9001:2008 (Quality management systems – Requirements) as a foundation, along with a structure of procedures and instructions based upon strong operational practices of checks and balances. This system ensures proper controls from the initial contract, through processing, shipping and storage, to proper monitoring and data collection, to successful completion of each transaction or shipment.

The overall Quality Management System is transitioning to ISO 9001:2015, which is expected to be completed in 2019. In addition, the Quality Management System is being enhanced and integrated with GxP elements (i.e. Good Distribution Practices) that are applicable to temperature controlled logistics and bioservices for the life sciences industry. It is Cryoport's mandate provide the highest level of quality and to meet and/or exceed customer requirements.

This system will further integrate additional elements of Cryoport's business processes, risk management, design controls, and leadership commitment to the Quality Management System.

Employees

The efforts of our employees are critical to our success. We believe that we have assembled a strong management team with the experience and expertise needed to execute our business strategy. We anticipate hiring additional personnel as needs dictate to implement our growth strategy. As of December 31, 2018, we had ninety-two employees and consultants: seventy-three full-time, one part-time, fifteen temporary and three consultants.

Corporate History and Structure

We are a Nevada corporation originally incorporated under the name G.T.5-Limited ("GT5") on May 25, 1990. In connection with a Share Exchange Agreement, on March 15, 2005 we changed our name to Cryoport, Inc. and

acquired all of the issued and outstanding shares of common stock of Cryoport Systems, Inc., a California corporation, in exchange for 200,901 shares of our common stock (which represented approximately 81% of the total issued and outstanding shares of common stock following the close of the transaction). Cryoport Systems, Inc., which was originally formed in 1999 as a California limited liability company, and subsequently reorganized into a California corporation on December 11, 2000, remains the operating company under Cryoport, Inc. Our principal executive offices are located at 17305 Daimler Street, Irvine, CA 92614. The telephone number of our principal executive offices is (949) 470-2300, and our main corporate website is www.cryoport.com. The information on or that can be accessed through our website is not part of this Form 10-K.

The Company became public by a reverse merger with a shell company in May 2005. Over time the Company has transitioned from being a development company to a fully operational public company, providing temperature controlled logistics solutions to the life sciences industry globally.

Available Information

Our main corporate website address is www.cryoport.com. The information on or that can be accessed through our website is not part of this Form 10-K. We electronically file with the Securities and Exchange Commission (SEC) our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to the reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act. We make available free of charge on or through our website copies of these reports as soon as reasonably practicable after we electronically file these reports with, or furnish them to, the SEC. Further, copies of these reports are available at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. Information on the operation of the Public Reference Room can be obtained by calling the SEC at 1-800-SEC-0330. The SEC also maintains an internet site that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC at www.sec.gov.

ITEM 1A. RISK FACTORS

Risks Related to Our Financial Condition

We have incurred significant losses to date and may continue to incur losses.

We have incurred net losses in each fiscal year since we commenced operations. The following table represents net losses incurred for each of our last two reporting periods:

	Net Loss
Year Ended December 31, 2018	$9,556,000
Year Ended December 31, 2017	$7,899,000

As of December 31, 2018, we had an accumulated deficit of $141.0 million. In order to achieve and sustain revenue growth in the future, we must significantly expand our market presence and revenues from existing and new customers. We may continue to incur losses in the future and may never generate revenues sufficient to become profitable or to sustain profitability. Continuing losses may impair our ability to raise the additional capital required to continue and expand our operations.

We could need to raise additional capital in the future, and if we are unable to secure adequate funds on terms acceptable to us, we could be unable to execute our business plan.

To remain competitive, we must continue to make significant investments in the development and broadening of our solutions, the expansion of our sales and marketing activities, and the expansion of our global logistics operations infrastructure as we increase sales domestically and internationally. If cash on hand, short-term investment and cash generated from our operations is insufficient to fund such growth, we could be required to raise additional funds through the issuance of equity or debt securities in the public or private markets, or through a collaborative arrangement. Additional financing opportunities may not be available to us, or if available, may not be on favorable terms. The availability of financing opportunities will depend, in part, on market conditions, and the outlook for our business. Any future issuance of equity securities or securities convertible into equity securities could result in substantial dilution to our stockholders, and the securities issued in such a financing could have rights, preferences or privileges senior to those of our common stock. In addition, if we raise additional funds through debt financing, we could be subject to debt covenants that place limitations on our operations. We could not be able to raise additional capital on reasonable terms, or at all, or we could use capital more rapidly than anticipated. If we cannot raise the required capital when needed, we may not be able to satisfy the demands of existing and prospective customers, we

could lose revenue and market share and we may have to curtail our capital expenditures. The following factors, among others, could affect our ability to obtain additional financing on favorable terms, or at all:

- our results of operations;
- general economic conditions and conditions in the markets we serve;
- the perception of our business in the capital markets;
- our financial condition; and
- our business prospects.

If we are unable to obtain sufficient capital in the future, we could have to curtail our capital expenditures. Any curtailment of our capital expenditures could result in a reduction in net revenue, reduced quality of our products, increased manufacturing costs for our products, harm to our reputation, or reduced manufacturing efficiencies and could have a material adverse effect on our business, financial condition, and results of operations.

Risks Related to Our Business

We will have difficulty increasing our revenues if we experience delays, difficulties or unanticipated costs in establishing the sales, marketing and distribution capabilities necessary to successfully commercialize our solutions.

We plan to further enhance our sales, marketing and distribution capabilities in the Americas, EMEA, and APAC. It will be expensive and time-consuming for us to develop our global marketing and sales network and thus we intend to further broaden our strategic alliances with domestic and international providers of shipping services and other solutions providers to the life sciences industry to incorporate use of our solutions in their service offerings. We may not be able to provide adequate incentive to our sales force or to establish and maintain favorable distribution and marketing collaborations with others to promote our solutions. In addition, any third party with whom we have established a marketing and distribution relationship may not devote sufficient time to the marketing and sales of our solutions, thereby exposing us to potential expenses in exiting such distribution agreements. We, and any of our alliance partners, must also market our services in compliance with federal, state, local and international laws relating to the provision of incentives and inducements. Violation of these laws can result in substantial penalties. Therefore, if we are unable to successfully motivate and expand our marketing and sales force and further develop our sales and marketing capabilities, or if our alliance partners fail to promote our solutions, we will have difficulty increasing our revenues and the revenue may not off-set the additional expense of expansion.

Our agreements with global providers of shipping services may not result in a significant increase in our revenues or cash flow, soon or in the future.

We believe that establishing strategic alliances with global providers (integrators) of logistics and of shipping services, such as our agreements with FedEx, DHL, and UPS have the potential to drive growth in our revenues, but there is no certainty to this view. See "—Strategic Logistics Alliances" in Part I, Item 1 of this Form 10-K for additional information about our agreements with FedEx, DHL, and UPS. We are seeking to establish similar arrangements with other providers of international shipping services. We anticipate all such alliances will enable us to provide seamless, end-to-end shipping solutions to customers of our respective alliance partners and allow us to leverage the established relationships with those customers, but there is no guarantee this will happen.

Because our agreements with FedEx, DHL, and UPS do not contain any requirement that they use a minimum level of our services, there can be no assurance of any significant increase in our revenues or cash flows as a result of these strategic alliances.

Our agreements with providers of vaccines may not result in a significant increase in our revenues or cash flow.

In December 2012, we entered an agreement with what became Zoetis, Inc. (in January 2013, Pfizer spun off its animal health business into Zoetis, Inc., a public company) pursuant to which we were engaged to manage frozen shipments of a key poultry vaccine from Zoetis' production site in the United States. Over time, Zoetis has further expanded our role in providing them assistance in managing their cryogenic distribution of their vaccines and has become one of our larger customers. We believe that establishing strategic relationships with manufacturers and distributors of treatments for animals and humans, such as our agreements with Zoetis, Inc. can drive growth in our revenues.

While we anticipate growth in shipments by Zoetis under our management, there can be no assurance of any significant increase in our revenues or cash flows as a result of these important alliances.

Our ability to grow and compete in our industry will be hampered if we are unable to retain the continued service of our key professionals or to identify, hire and retain additional qualified professionals.

Our success in implementing our business strategy depends largely on the skills, experience and performance of key members of our executive management team and others in key management positions. The collective efforts of each

of these persons working as a team will be critical to us as we continue to develop our technologies, tests and engineering and development and sales programs. As a result of the difficulty in locating qualified new management, the loss or incapacity of existing members of our executive management team could adversely affect our operations. If we were to lose one or more of these key employees, we could experience difficulties in finding qualified successors, competing effectively, developing our technologies and implementing our business strategy. We do not maintain “key person” insurance on any of our employees.

In addition, a critical factor to our business is our ability to attract and retain qualified professionals including key employees and consultants. We are continually at risk of losing current professionals or being unable to hire additional professionals as needed. If we are unable to attract new qualified employees, our ability to grow will be adversely affected. If we are unable to retain current employees or strategic consultants, our financial condition and ability to maintain operations may be adversely affected.

Sustainable future revenue growth is dependent on new solutions and services.

Our future revenue stream depends to a large degree on our ability to bring new solutions and services to market on a timely basis. We must continue to make significant investments in engineering and development in order to continue to develop new solutions and services, enhance existing solutions and services, and achieve market acceptance of such solutions and services. We may incur problems in introducing new solutions and services.

The adoption cycle of our target customers tends to be very lengthy, which may adversely affect our ability to increase revenues quickly.

We offer our solutions to companies in the life sciences industry. These companies operate within a heavily regulated environment and as such, changing vendors and distribution practices typically require a number of steps, which may include the audit of our facilities, review of our procedures, qualifying us as a vendor, and performing test shipments. This process can take several months or longer to complete, involving multiple levels of approval, prior to a company fully adopting our Cryoport Express® Solutions. The logistics management of many companies is decentralized adding to the time need to effect adaptation of our solutions. In addition, any such adoption may be on a gradual basis such that the customer progressively ramps up use of our Cryoport Express® Solutions following adoption. The slow adoption process continues to adversely affect our ability to increase revenues.

Our customers are solutions and services may contain errors or defects, which could result in damage to our reputation, lost revenues, diverted development resources and increased service costs and litigation.

Our solutions and services must meet stringent requirements and we must develop our services and solutions quickly to keep pace with the rapidly changing market. Solutions as sophisticated as ours could contain undetected errors or defects, especially when first introduced or when new equipment or versions of our software are released. If our solutions are not free from errors or defects, we may incur an injury to our reputation, lost revenues, diverted development resources, increased customer service and support costs, and litigation. The costs incurred in correcting any product errors or defects may be substantial and could adversely affect our business, results of operations and financial condition.

Our solutions and services may contain errors or defects, which could result in damage to our reputation, lost revenues, diverted development resources and increased service costs and litigation.

Our solutions and services must meet stringent requirements and we must develop our services and solutions quickly to keep pace with the rapidly changing market. Solutions as sophisticated as ours could contain undetected errors or defects, especially when first introduced or when new equipment or versions of our software are released. If our solutions are not free from errors or defects, we may incur an injury to our reputation, lost revenues, diverted development resources, increased customer service and support costs, and litigation. The costs incurred in correcting any product errors or defects may be substantial and could adversely affect our business, results of operations and financial condition.

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

The marketing, sale and use of our products could lead to the filing of product liability claims were someone to allege that our products failed to perform as designed. A product liability claim could result in substantial damages and be costly and time-consuming for us to defend.

Although we believe that our existing insurance is adequate, our insurers may fail to defend us or our insurance may not fully protect us from the financial impact of defending against product liability claims. Any product liability claim brought against us, with or without merit, could increase our insurance rates or prevent us from securing insurance coverage in the future. Additionally, any product liability lawsuit could damage our reputation, or cause current clinical partners and collaborators to terminate existing agreements and potential clinical partners to seek other partners, cause customers to terminate their relationship with us and potential customers to seek alternative solutions, any of which could impact our results of operations.

If we experience delays in procurement of components used in our Cryoport Express® Solutions manufactured by third parties, then we may experience customer dissatisfaction and our reputation could suffer.

If we fail to procure sufficient components used in our Cryoport Express® Solutions from our third party manufacturers, we may be unable to deliver our solutions to our customers on a timely basis, which could lead to customer dissatisfaction and could harm our reputation and ability to compete. We currently acquire various component parts for our solutions from various independent manufacturers, some of which are sole sourced. We would likely experience significant delays or cessation in producing some of these components if a labor strike, natural disaster or other supply disruption were to occur at any of our main suppliers. If we are unable to procure a component from one of our manufacturers, we may be required to enter into arrangements with one or more alternative manufacturing companies, which may cause delays in producing components. To date, we have not experienced any material delay that has adversely impacted our operations. As our business develops it becomes more likely that such problems could arise.

We expect to base our equipment and inventory purchasing decisions on our forecasts of customers' demand, and if our forecasts are inaccurate, our operating results could be materially harmed.

As our customer base increases, we expect the need to purchase additional equipment and inventory. Our forecasts will be based on multiple assumptions, each of which may cause our estimates to be inaccurate, affecting our ability to provide products to our customers. When demand for our products increases significantly, we may not be able to meet demand on a timely basis, and we may need to expend a significant amount of time working with our customers to allocate limited supply and maintain positive customer relations, or we may incur additional costs in order to rush the manufacture and delivery of additional products. If we underestimate customers' demand, we may forego revenue opportunities, lose market share and damage our customer relationships. Conversely, if we overestimate customer demand, we may purchase more equipment and inventory than we are able to use or sell at any given time or at all. As a result of our failure properly to estimate demand for our products, we could have excess or obsolete equipment and/or inventory, resulting in a decline in the value of our equipment and/or inventory, which would increase our costs of revenues and reduce our liquidity. Our failure to accurately manage our equipment purchases and inventory relative to demand would adversely affect our operating results.

If we experience delays or interruption in shipping due to factors outside of our control, such disruption could lead to customer dissatisfaction and harm our reputation.

We rely on third party shipment and carrier services to transport our shippers containing biological material. These third party operations could be subject to natural disasters, adverse weather conditions, other business disruptions, and carrier error, which could cause delays in the delivery of our shippers, which in turn could cause serious harm to the biological material being shipped. As a result, any prolonged delay in shipment, whether due to technical difficulties, power failures, break-ins, destruction or damage to carrier facilities as a result of a natural disaster, fire, or any other reason, could result in damage to the contents of the shipper. If we are unable to deliver our shippers in a timely matter and without damage, this could also harm our operating results and our reputation, even if we are not at fault.

Our solutions and services may expose us to liability in excess of our current insurance coverage.

Our solutions and services involve significant risks of liability, which may substantially exceed the revenues we derive from them. We cannot predict the magnitude of these potential liabilities. We currently maintain general liability insurance, with coverage in the amount of $1 million per occurrence, subject to a $2 million annual limitation, and product liability insurance with a $1 million annual coverage limitation. Claims may be made against us that exceed these limits.

Our liability policy is an "occurrence" based policy. Thus, our policy is complete when we purchased it and following cancellation of the policy it continues to provide coverage for future claims based on conduct that took place during the policy term. Our insurance coverage, however, may not protect us against all liability because our policies typically have various exceptions to the claims covered and also require us to assume some costs of the claim even though a portion of the claim may be covered. In addition, if we expand into new markets, we may not be aware of the need for, or be able to obtain insurance coverage for such activities or, if insurance is obtained, the dollar amount of any liabilities incurred could exceed our insurance coverage. A partially or completely uninsured claim, if successful and of significant magnitude, could have a material adverse effect on our business, financial condition and results of operations.

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

Our customers may ship potentially harmful biological materials in our dewars. We cannot eliminate the risk of accidental contamination or injury to employees or third parties from the use, storage, handling or disposal of these materials. In the event of contamination or injury, we could be held liable for any resulting damages, and any liability could exceed our resources or any applicable insurance coverage we may have. Additionally, we are subject 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. In the event of an accident, we could be held liable for damages.

If we cannot compete effectively, we will lose business.

Our services and solutions are positioned to be competitive in the life sciences cold-chain logistics market. While there are technological and marketing barriers to entry, we cannot guarantee that the barriers we are capable of producing will be sufficient to defend the market share we wish to gain against current and future competitors. Our principal competitive considerations in our market include:

· financial resources to allocate to proper marketing and an appropriate sales effort

· acceptance of our solutions model

· acceptance of our solutions including per use fee structures and other charges for services

· keeping up technologically with ongoing development of enhanced features and benefits

· reductions in the delivery costs of competitors' solutions

· the ability to develop and maintain and expand strategic alliances

· establishing our brand name

· our ability to deliver our solutions to our customers when requested

· our timing of introductions of new solutions, and services

· financial resources to support working capital needs and required capital investments in infrastructure

Current and prospective competitors may have substantially greater resources, more customers, longer operating histories, greater name recognition and more established relationships in the industry. As a result, these competitors may be able to develop and expand their networks and product offerings more quickly, devote greater resources to the marketing and sale of their solutions and adopt more aggressive pricing policies. In addition, these competitors have entered and will likely continue to enter into business relationships to provide additional solutions competitive to those we provide or plan to provide.

We may acquire other businesses, products or technologies in order to remain competitive in our market and our business could be adversely affected as a result of any of these future acquisitions.

We may make acquisitions of complementary businesses, products or technologies. If we identify any appropriate acquisition candidates, we may not be successful in negotiating acceptable terms of the acquisition, financing the acquisition, or integrating the acquired business, products or technologies into our existing business and operations. Further, completing an acquisition and integrating an acquired business will significantly divert management time and resources. The diversion of management attention and any difficulties encountered in the transition and integration process could harm our business. If we consummate any significant acquisitions using stock or other securities as consideration, our shareholders' equity could be significantly diluted. If we make any significant acquisitions using cash consideration, we may be required to use a substantial portion of our available cash. Acquisition financing may not be available on favorable terms, if at all. In addition, we may be required to amortize significant amounts of other intangible assets in connection with future acquisitions, which would harm our operating results and financial condition.

If we successfully develop products and/or services, but those products and/or services do not achieve and maintain market acceptance, our business will not be profitable.

The degree of acceptance of our Cryoport Express® Solutions or any future products or services by our current target markets, and any other markets to which we attempt to sell our products and services, and our profitability and growth will depend on a number of factors including, among others:

- our shippers' ability to perform and preserve the integrity of the materials shipped
- relative convenience and ease of use of our shipper and/or Cryoportal™
- availability of alternative products or new technologies that make our solutions offering less desirable or competitive
- pricing and cost effectiveness
- effectiveness of our or our collaborators' sales and marketing strategy
- the adoption cycles of our targeted customers

If any products or services we may develop do not achieve market acceptance, then we may not generate sufficient revenue to achieve or maintain profitability.

In addition, even if our products and services achieve market acceptance, we may not be able to maintain that market acceptance over time if new products or services are introduced that are more favorably received than our products and services, are more cost effective, or render our products obsolete. Although we are not aware of any other treatments or methods currently being developed that would directly compete with the methods we employ, there can be no assurance that future developments in technology will not make our technology non-competitive or obsolete, or significantly reduce our operating margins or the demand for our offerings, or otherwise negatively impact our ability to be profitable.

We may not be able to compete with our competitors in the industry because many of them have greater resources than we do.

We expect to continue to experience significant and increasing levels of competition in the future. In addition, there may be other companies which are currently developing competitive products and services or which may in the future develop technologies and products that are comparable, superior or less costly than our own. For example, some cryogenic equipment manufacturers with greater resources currently have solutions for storing and transporting cryogenic liquid and gasses and may develop storage solutions that compete with our products. Additionally, some specialty couriers with greater resources currently provide dry ice transportation and may develop other products in the future, both of which compete with our products. A competitor that has greater resources than us may be able to bring its product to market faster than we can and offer its product at a lower price than us to establish market share. We may not be able to successfully compete with a competitor that has greater resources and such competition may adversely affect our business.

Intellectual Property Risks Associated with Our Business

Our success depends, in part, on our ability to obtain patent protection for our solutions, preserve our trade secrets, and operate without infringing the proprietary rights of others.

Our policy is to seek to protect our proprietary position by, among other methods, filing United States patent applications related to our technology, inventions and improvements that are important to the development of our business. Our patents or patent applications may be challenged, invalidated or circumvented in the future or the rights granted may not provide a competitive advantage. We intend to vigorously protect and defend our intellectual property. Costly and time-consuming litigation brought by us may be necessary to enforce our patents and to protect our trade secrets and know-how, or to determine the enforceability, scope and validity of the proprietary rights of others.

We also rely upon trade secrets, technical know-how and continuing technological innovation to develop and maintain our competitive position. In the past our employees, consultants, advisors and suppliers have not always executed confidentiality agreements and inventions assignment and work for hire agreements in connection with their employment, consulting, or advisory relationships. Consequently, we may not have adequate remedies available to us to protect our intellectual property should one of these parties attempt to use our trade secrets or refuse to assign any rights he or she may have in any intellectual property he or she developed for us. Additionally, our competitors may independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our proprietary technology, or we may not be able to meaningfully protect our rights in unpatented proprietary technology.

While we are not aware of any third party that is infringing any of our patents or trademarks nor do we believe that we are infringing on the patents or trademarks of any other person or organization, we cannot guarantee that our current and potential competitors and other third parties have not filed (or in the future will not file) patent applications for (or have not received or in the future will not receive) patents or obtain additional proprietary rights that will prevent, limit or interfere with our ability to make, use or sell our solutions either in the United States or internationally. Additionally, we may face assertions of claims by holders of patents alleging that we are infringing upon their patent rights, which claims may be without merit, but may nonetheless result in our incurring substantial costs of defense.

We are dependent on third parties for the continued development and maintenance of our Cryoportal™ software.

Our proprietary Cryoportal™ is a logistics platform software used by our customers, business partners and client care team to automate the entry of orders, prepare customs documentation and facilitate status and location monitoring of shipped orders while in transit. The continued development of the Cryoportal™ platform is in part contracted to outside software development companies. If these companies become unable or unwilling to continue work on scheduled projects, and an alternative software development company cannot be secured, we may not be able to implement needed enhancements to the system. Failure to proceed with enhancements to the system would adversely affect our ability to generate new business and serve existing customers, resulting in a reduction in revenue.

Our customers could also become the target of litigation relating to the patent and other intellectual property rights of others.

Any litigation relating to the intellectual property rights of others could trigger technical support and indemnification obligations in licenses or customer agreements that we may enter into. These obligations could result in substantial expenses, including the payment by us of costs and damages relating to claims of intellectual property infringement. In addition to the time and expense required for us to provide support or indemnification to our customers, any such litigation could disrupt the businesses of our customers, which in turn could hurt our relationships with such customers and cause the sale of our products to decrease. No assurance can be given that claims for indemnification will not be made, or that if made, such claims would not have a material adverse effect on our business, operating results or financial conditions.

We rely upon certain critical information systems, including our Cryoportal™ software platform, for the operation of our business and the failure of any critical information system could adversely impact our reputation and future revenues and we may be required to increase our spending on data and system security.

We rely upon certain critical information systems, including our Cryoportal™ software platform which is used by our customers and business partners to automate the entry of orders, prepare customs documentation and facilitate status and location monitoring of shipped orders while in transit. In addition, the provision of service to our customers and the operation of our networks and systems involve the storage and transmission of significant amounts of proprietary information and sensitive or confidential data, including personal information of customers, employees and others. Our technology infrastructure and critical information systems are subject to damage or interruption from a number of potential sources, including unauthorized intrusions, cyber-attacks, software viruses or other malware, natural disasters, power failures, employee error or malfeasances and other events. Despite our best efforts, no cybersecurity or emergency recovery process is failsafe, and if our safeguards fail or our technology infrastructure or critical information systems are compromised, the safety and efficiency of our operations could be materially harmed, our reputation could suffer, and we could face additional costs, liabilities, costly legal challenges. Additionally, an actual or alleged failure to comply with applicable United States or foreign data protection regulations or other data protection standards may expose us to litigation, fines, sanctions or other penalties. We do not have cyber security insurance and we may incur significant costs in the event of a successful cyber-attack against us. The cost and operational consequences of implementing, maintaining and enhancing further data or system protection measures could increase significantly to overcome increasingly intense, complex and sophisticated global cyber threats.

Regulatory Risks Relating to Our Business

Complying with certain regulations that apply to shipments using our solutions can limit our activities and increase our cost of operations.

Shipments using our solutions and services are subject to various regulations in the various countries in which we operate. For example, shipments using our solutions may be required to comply with the shipping requirements promulgated by the Centers for Disease Control (“CDC”), the Occupational Safety and Health Organization (“OSHA”), the DOT as well as rules established by the IATA and the ICAO. Additionally, our data logger may be subject to regulation and certification by the FDA, the FCC, and the FAA. Department of Transportation (“DOT”) as well as rules established by the IATA and the ICAO. Additionally, our data logger may be subject to regulation and certification by the Food and Drug Administration (“FDA”), Federal Communications Commission (“FCC”), and the Federal Aviation Administration (“FAA”). We will need to ensure that our solutions and services comply with relevant rules and regulations to make our solutions and services marketable, and in some cases compliance is difficult to determine. Significant changes in such regulations could require costly changes to our solutions and services or prevent use of our shippers for an extended period of time while we seek to comply with changed regulations. If we are unable to comply with any of these rules or regulations or fail to obtain any required approvals, our ability to market our solutions and services may be adversely affected. In addition, even if we are able to comply with these rules and

regulations, compliance can result in increased costs. In either event, our financial results and condition may be adversely affected. We depend on our business partners and unrelated and frequently unknown third party agents in foreign countries to act on our behalf to complete the importation process and to make delivery of our shippers to the final user. The failure of these third parties to perform their duties could result in damage to the contents of the shipper resulting in customer dissatisfaction or liability to us, even if we are not at fault.

If we become subject to additional regulatory requirements, our solutions may become subject to increased expenses.

Our solutions are currently not subject to FDA or other regulatory approvals. However, there can be no assurance that our solutions will not be regulated by the FDA, or foreign regulatory authorities, as applicable, in the future. Any such requirements may subject us to additional expenses.

Risks Relating to Ownership of Our Common Stock and Other Securities

Certain of our existing stockholders own and have the right to acquire a substantial number of shares of common stock.

As of March 1, 2019, our directors, executive officers and beneficial owners of 5% or more of our outstanding common stock beneficially owned 8,794,918 shares of common stock (without regard to beneficial ownership limitations contained in certain warrants) assuming their exercise of all outstanding warrants and options that are exercisable within 60 days of March 1, 2019 or approximately 28.9% of our outstanding common stock. As such, the concentration of beneficial ownership of our common stock may have the effect of delaying or preventing a change in control of Cryoport and may adversely affect the voting or other rights of other holders of our common stock.

The sale of substantial shares of our common stock may depress our stock price.

As of March 1, 2019, there were 30,436,322 shares of our common stock outstanding. Substantially all of these shares of common stock are eligible for trading in the public market. The market price of our common stock may decline if our stockholders sell a large number of shares of our common stock in the public market, or the market perceives that such sales may occur. We could also issue up to an additional 13,180,207 shares of our common stock including 1,966,414 shares to be issued upon the exercise of outstanding warrants, 9,840,795 shares upon exercise of outstanding options or reserved for future issuance under our stock incentive plans and 1,372,998 shares to be issued upon conversion of the outstanding convertible note, assuming no outstanding accrued interest as of the date of conversion.

Our stock price has been and will likely continue to be volatile.

The market price of our common stock has been highly volatile and could fluctuate widely in price in response to various factors, many of which are beyond our control, including, but not limited to:

- technological innovations or new solutions and services by us or our competitors
- additions or departures of key personnel
- sales of our common stock
- our ability to execute our business plan
- our operating results being below expectations
- loss of any strategic relationship
- industry developments
- economic and other external factors

· period-to-period fluctuations in our financial results

In addition, the securities markets have from time to time experienced significant price and volume fluctuations that are unrelated to the operating performance of particular companies. These market fluctuations may also materially and adversely affect the market price of our common stock and warrants.

We are at risk of securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because our stock price and those of other biotechnology and life sciences companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of management's attention and resources, which could harm our business. We do maintain insurance, but the coverage may not be sufficient and may not be available in all instances.

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

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

We have not paid dividends on our common stock in the past and do not expect to pay dividends in the foreseeable future. Any return on investment may be limited to the value of our common stock.

We have never paid cash dividends on our common stock and do not anticipate paying cash dividends in the foreseeable future. The payment of dividends on our common stock will depend on our earnings, financial condition and other business and economic factors affecting us at such time as the Board of Directors may consider the payment of any such dividends. If we do not pay dividends, our common stock may be less valuable because a return on your investment will only occur if the price of our common stock appreciates.

We may need additional capital, and the sale of additional shares of common stock or other equity securities could result in additional dilution to our stockholders.

Our current cash and cash equivalents and anticipated cash flow from operations may be insufficient to meet our cash needs in the long term. We may require additional cash resources to fund our operations and may require additional funds in the future due to changed business conditions or other future developments, including any investments or acquisitions we may decide to pursue. The sale of additional equity securities, or debt securities convertible into equity securities, could result in additional dilution to our stockholders. The incurrence of indebtedness would result in increased debt service obligations and could result in operating and financing covenants that would restrict our operations.

We have outstanding convertible debt as a result of prior financings, which is scheduled to mature in December 2023. Our indebtedness could adversely affect our business, financial condition and results of operations.

Our outstanding convertible debt, which includes a convertible note with an original principal amount of $15,000,000, could have significant consequences for our future operations, including, among others:

- making it more difficult for us to meet our other obligations or raise additional capital;
- resulting in an event of default, if we fail to comply with our payment obligations;
- reducing the availability of any financing proceeds to fund operating expenses, other debt repayment, and working capital requirements; and
- limiting our financial flexibility and hindering our ability to obtain additional financing.

Any of the above-listed factors could have a material adverse effect on our business, financial condition, results of operations, and ability to continue as a going concern.

Our ability to make interest and principal payments on our outstanding convertible note will depend entirely on our ability to raise sufficient funds to satisfy our debt service obligations and our note holders' willingness to convert their notes to common shares, which will likely depend on our stock price from time to time. If note holders do not elect to convert, it is likely that we will need to borrow or raise additional funds to make required principal and interest

payments, as such payments become due and payable, or undertake alternative financing plans, such as refinancing or restructuring our debt, selling additional shares of capital stock, selling assets or reducing or delaying investments in our business. Any inability to obtain additional funds or alternative financing on acceptable terms would likely cause us to be unable to meet our payment obligations, which could have a material adverse effect on our business, financial condition and results of operations and our ability to continue to operate.

While warrants to purchase our common stock are outstanding, it may be more difficult to raise additional equity capital.

As of March 1, 2019, we have outstanding options and warrants for the purchase of up to 13,180,207 shares of our common stock, including 1,966,414 shares to be issued upon the exercise of outstanding warrants and 9,840,795 shares upon exercise of outstanding options or reserved for future issuance under our stock incentive plans, and 1,372,998 shares to be issued upon conversion of the outstanding convertible note, assuming no outstanding accrued interest as of the date of conversion. We may find it more difficult to raise additional equity capital while some or all of these warrants are outstanding. At any time during which these warrants are likely to be exercised, we may not be able to obtain financing on favorable terms, or at all. If we are unable to obtain financing, our business, results of operations, or financial condition could be materially and adversely affected, and we could be forced to curtail or cease operations.

Our Articles of Incorporation allows our Board of Directors to issue up to 2,500,000 shares of "blank check" preferred stock.

Our Articles of Incorporation allows our board of directors to issue up to 2,500,000 shares of "blank check" preferred stock, without action by our stockholders. We have designated 800,000 shares as Class A Preferred Stock and 585,000 shares as Class B Preferred Stock, none of which are currently issued and outstanding. Accordingly, our board of directors will have discretion to issue up to 1,115,000 shares on terms determined by them. Without limiting the foregoing, (i) such shares of preferred stock could have liquidation rights that are senior to the liquidation preference applicable to our common stock and Preferred Stock, (ii) such shares of preferred stock could have voting or conversion rights, which could adversely affect the voting power of the holders of our common stock and Preferred Stock and (iii) the ownership interest of holders of our common stock will be diluted following the issuance of any such shares of preferred stock. In addition, the issuance of such shares of blank check preferred stock could have the effect of discouraging, delaying or preventing a change of control of our Company.

Provisions in our bylaws and Nevada law might discourage, delay or prevent a change of control of our Company or changes in our management and, as a result, may depress the trading price of our common stock.

Provisions of our bylaws and Nevada law may discourage, delay or prevent a merger, acquisition or other change in control that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares of our common stock. The relevant bylaw provisions may also prevent or frustrate attempts by our stockholders to replace or remove our management. These provisions include advance notice requirements for stockholder proposals and nominations, and the ability of our Board of Directors to make, alter or repeal our bylaws.

Absent approval of our Board of Directors, our bylaws may only be amended or repealed by the affirmative vote of the holders of at least a majority of our outstanding shares of capital stock entitled to vote.

In addition, Section 78.438 of the Nevada Revised Statutes prohibits a publicly-held Nevada corporation from engaging in a business combination with an interested stockholder (generally defined as a person which together with its affiliates owns, or within the last three years has owned, 10% of our voting stock, for a period of three years after the date of the transaction in which the person became an interested stockholder) unless the business combination is approved in a prescribed manner.

The existence of the foregoing provisions and other potential anti-takeover measures could limit the price that investors might be willing to pay in the future for shares of our common stock. They could also deter potential acquirers of our Company, thereby reducing the likelihood that you could receive a premium for your common stock in an acquisition.

Even though we are not incorporated in California, we may become subject to a number of provisions of the California General Corporation Law.

Section 2115(b) of the California Corporations Code imposes certain requirements of California corporate law on corporations organized outside California that, in general, are doing more than 50% of their business in California and have more than 50% of their outstanding voting securities held of record by persons residing in California. While we are not currently subject to Section 2115(b), we may become subject to it in the future.

The following summarizes some of the principal differences which would apply if we become subject to Section 2115(b).

Under both Nevada and California law, cumulative voting for the election of directors is permitted. However, under Nevada law cumulative voting must be expressly authorized in the Articles of Incorporation and our Amended and Restated Articles of Incorporation do not authorize cumulative voting. If we become subject to Section 2115(b), we may be required to permit cumulative voting if any stockholder properly requests to cumulate his or her votes.

Under Nevada law, directors may be removed by the stockholders only by the vote of two-thirds of the voting power of the issued and outstanding stock entitled to vote. However, California law permits the removal of directors by the vote of only a majority of the outstanding shares entitled to vote. If we become subject to Section 2115(b), the removal of a director may be accomplished by a majority vote, rather than a vote of two-thirds, of the stockholders entitled to vote.

Under California law, the corporation must take certain steps to be allowed to provide for greater indemnification of its officers and directors than is provided in the California Corporation Code. If we become subject to Section 2115(b), our ability to indemnify our officers and directors, to the extent permitted in our Articles of Incorporation, Bylaws and under Nevada law, may be limited by California law.

Nevada law permits distributions to stockholders as long as, after the distribution, (i) the corporation would be able to pay its debts as they become due and (ii) the corporation’s total assets are at least equal to its liabilities and preferential dissolution obligations. Under California law, distributions may be made to stockholders as long as the corporation would be able to pay its debts as they mature and either (i) the corporation’s retained earnings equal or exceed the amount of the proposed distributions, or (ii) after the distributions, the corporation’s tangible assets are at least 125% of its liabilities and the corporation’s current assets are at least equal to its current liabilities (or, 125% of its current liabilities if the corporation’s average operating income for the two most recently completed fiscal years was less than the average of the interest expense of the corporation for those fiscal years). If we become subject to Section 2115(b), we will have to satisfy more stringent financial requirements to be able to pay dividends to our stockholders. Additionally, stockholders may be liable to the corporation if we pay dividends in violation of California law.

California law permits a corporation to provide "supermajority vote" provisions in its Articles of Incorporation, which would require specific actions to obtain greater than a majority of the votes, but not more than 66 $^{2}/_{3}$ percent. Nevada law does not permit supermajority vote provisions. If we become subject to Section 2115(b), it is possible that our stockholders would vote to amend our Articles of Incorporation and require a supermajority vote for us to take specific actions.

Under California law, in a disposition of substantially of all the corporation's assets, if the acquiring party is in control of or under common control with the disposing corporation, the principal terms of the sale must be approved by 90 percent of the stockholders. Although Nevada law does contain certain rules governing interested stockholder business combinations, it does not require similar stockholder approval. If we become subject to Section 2115(b), we may have to obtain the vote of a greater percentage of the stockholders to approve a sale of our assets to a party that is in control of, or under common control with, us.

California law places certain additional approval rights in connection with a merger if all of the shares of each class or series of a corporation are not treated equally or if the surviving or parent party to a merger represents more than 50 percent of the voting power of the other corporation prior to the merger. Nevada law does not require such approval. If we become subject to Section 2115(b), we may have to obtain the vote of a greater percentage of the stockholders to approve a merger that treats shares of a class or series differently or where a surviving or parent party to the merger represents more than 50% of the voting power of the other corporation prior to the merger.

California law requires the vote of each class to approve a reorganization or a conversion of a corporation into another entity. Nevada law does not require a separate vote for each class. If we become subject to Section 2115(b), we may have to obtain the approval of each class if we desire to reorganize or convert into another type of entity.

California law provides greater dissenters' rights to stockholders than Nevada law. If we become subject to Section 2115(b), more stockholders may be entitled to dissenters' rights, which may limit our ability to merge with another entity or reorganize.

If we fail to maintain an effective system of internal control over financial reporting, we may not be able to accurately report our financial results, and current and potential stockholders may lose confidence in our financial reporting.

We are required by the SEC to establish and maintain adequate internal control over financial reporting that provides reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements in accordance with generally accepted accounting principles. We are likewise required, on a quarterly basis, to evaluate the effectiveness of our internal controls and to disclose any changes and material weaknesses in those internal controls. In addition, our independent registered public accounting firm is required to report on whether it believes we maintained, in all material respects, effective internal control over financial reporting as of the end of the year. In future years, if we fail to timely complete this assessment, or if our independent registered public accounting firm cannot timely attest, there may be a loss of public confidence in our internal controls, the market price of our stock could decline, and we could be subject to regulatory sanctions or investigations by the Nasdaq Global Select Market, the SEC or other regulatory authorities, which would require additional financial and management resources. In addition, any failure to implement required new or improved controls, or difficulties encountered in their implementation, could harm our operating results or cause us to fail to timely meet our regulatory reporting obligations.

As described in Item 9A of this Form 10-K, no material weaknesses were identified and we determined that our internal control over financial reporting was effective as of December 31, 2018.

However, any failure to maintain such internal controls, to timely complete our evaluation of our internal controls, assessment, or to obtain our independent registered public accounting firm’s timely attestation on the effectiveness of our internal controls in the future could adversely impact our ability to report our financial results on a timely and accurate basis. If our financial statements are not accurate, investors may not have a complete understanding of our operations. Likewise, if our financial statements are not filed on a timely basis as required by the SEC and NASDAQ, we could face severe consequences from those authorities. In either case, there could result a material adverse effect on our business. Inferior internal controls could also cause investors to lose confidence in our reported financial information, which could have a negative effect on the trading price of our stock.

Our publicly-filed SEC reports are reviewed by the SEC from time to time and any significant changes required as a result of any such review may result in material liability to us and have a material adverse impact on the trading price of our common stock.

The reports of publicly-traded companies are subject to review by the SEC from time to time for the purpose of assisting companies in complying with applicable disclosure requirements and to enhance the overall effectiveness of companies' public filings, and reviews of such reports are now required at least every three years under the Sarbanes-Oxley Act of 2002. SEC reviews may be initiated at any time, and we could be required to modify or reformulate information contained in prior filings as a result of an SEC review. Any modification or reformulation of information contained in such reports could be significant and could result in material liability to us and have a material adverse impact on the trading price of our common stock.

The requirements of being a U.S. public company may strain our resources and divert management's attention.

As a U.S. public company, we are subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, certain listing requirements, and other applicable securities rules and regulations. Compliance with these rules and regulations will increase our legal and financial compliance costs, make some activities more difficult, time-consuming, or costly, and increase demand on our systems and resources. The Exchange Act requires, among other things, that we file annual and current reports with respect to our business and operating results. As a result of disclosure of information in this prospectus and in filings required of a public company, our business and financial condition is more visible, which we believe may result in threatened or actual litigation, including by competitors and other third parties. If such claims are successful, our business and operating results could be harmed, and even if the claims do not result in litigation or are resolved in our favor, these claims, and the time and resources necessary to resolve them, could divert resources of our management and harm our business and operating results.

ITEM 1B. Unresolved Staff Comments

Not applicable.

ITEM 2. Properties

We do not own real property. We currently lease 27,600 square feet of corporate, research and development, and logistics facilities in Irvine, California under an operating lease expiring February 2023, subject to our option to extend the lease for two additional five-year periods. The initial base rent is approximately $24,700 per month. We also lease 8,100 square feet of logistics facilities in Livingston, New Jersey under an operating lease expiring December 2024, subject to our option to extend the lease for an additional five-year period. The initial base rent is approximately $7,600 per month. In addition, we lease 7,600 square feet of logistics facilities in Hoofddorp, The Netherlands under an operating lease expiring March 2023, subject to our option to extend the lease for two additional

five-year periods. The initial base rent is approximately $5,400 per month. The lease agreements contain certain scheduled rent increases, which are accounted for on a straight-line basis.

In addition to the services provided through our Global Logistics Centers in Irvine, California, Livingston, New Jersey and Hoofddorp, The Netherlands we have contracted with a third party to run our Logistics Center covering APAC, located in Singapore. The Global Logistics Centers provide warehousing, shipping, receiving, refurbishing and recycling services for our shipping containers as well as other services offered as part of our Cryoport Express® Logistics Solutions and enable us to provide our services on a global basis.

We believe that these facilities are adequate, suitable and of sufficient capacity to support our immediate needs.

ITEM 3. Legal Proceedings

In the ordinary course of business, we are at times subject to various legal proceedings and disputes, including product liability claims. We currently are not aware of any such legal proceedings or claim that we believe will have, individually or in the aggregate, a material adverse effect on our business, operating results or cash flows. It is our practice to accrue for open claims based on our historical experience and available insurance coverage.

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

Common Stock

As of March 1, 2019 there were 30,436,322 shares of common stock outstanding and 286 stockholders of record. Because many shares of our common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these stockholders of record.

Market Information

The Company's common stock is currently listed on the NASDAQ Capital Market and is traded under the symbol "CYRX."

Dividends

No dividends on common stock have been declared or paid by the Company. The Company intends to employ all available funds for the development of its business and, accordingly, does not intend to pay any cash dividends in the foreseeable future.

Recent Sale of Unregistered Securities

None.

Issuer Purchases of Equity Securities

None.

ITEM 6. Selected Financial Data

The following selected financial data for the years ended March 31, 2015 and 2016, the nine months ended December 31, 2016 and the years ended December 31, 2018 and 2017 have been derived from audited consolidated financial statements of the Company. You should read the following financial information together with the information under "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and related notes included elsewhere in this Form 10-K. The information set forth below is not necessarily indicative of our future financial condition or results of operations.

	Year Ended December 31,		Nine Months Ended December 31,	Year Ended March 31,	
Statement of Operations Data:	2018	2017	2016	2016	2015
(Amounts in thousands, except per share data)					
Revenues	$ 19,626	$ 11,954	$ 6,123	$ 5,882	$ 3,935
Cost of revenues	9,386	5,988	3,603	3,992	2,766
Gross margin	10,240	5,966	2,520	1,890	1,169
General and administrative	9,799	7,421	4,635	5,925	3,497
Sales and marketing	7,246	5,232	3,573	4,156	2,912
Engineering and development	1,840	1,206	454	550	353
Loss from operations	(8,645)	(7,893)	(6,142)	(8,741)	(5,593)
Interest expense	(69)	(15)	(58)	(1,066)	(1,428)
Warrant inducement and repricing expense	(899)	—	(4,195)	—	—
Other income (expense), net	78	14	(2)	(9)	(4)
Loss before provision for income taxes	(9,536)	(7,894)	(10,397)	(9,816)	(7,025)
Provision for income taxes	(20)	(5)	(6)	(4)	(2)
Net loss	(9,556)	(7,899)	(10,403)	(9,820)	(7,027)
Preferred stock beneficial conversion charge	—	—	—	(4,474)	(4,864)
Undeclared cumulative preferred dividends	—	—	—	(763)	(306)
Net loss attributable to common stockholders	$ (9,556)	$ (7,899)	$ (10,403)	$ (15,057)	$ (12,197)
Net loss per share attributable to common stockholders – basic and diluted	$ (0.34)	$ (0.34)	$ (0.68)	$ (2.05)	$ (2.44)

	December 31,			March 31,	
Balance Sheet Data:	2018	2017	2016	2016	2015

(Amounts in thousands)					
Cash and cash equivalents	$37,327	$15,042	$4,525	$2,793	$1,405
Working capital (deficit)	48,713	15,097	3,865	1,958	(835)
Total assets	56,620	20,264	8,112	5,824	2,607
Convertible note, net	14,712	—	—	—	—
Other long term obligations, less current portion	301	175	200	554	26
Total stockholders' equity (deficit)	$38,547	$17,887	$5,680	$3,096	$(416)

30

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

The following discussion and analysis of our financial condition and results of our operations should be read in conjunction with our consolidated financial statements and related notes included elsewhere in this Form 10-K. Our actual results could differ materially from those contained in forward-looking statements due to a number of factors. See "Forward-Looking Statements" in this Form 10-K.

General Overview

We provide fully integrated, temperature controlled logistics solutions to the life sciences industry through a seamless combination of proprietary packaging, information technology, and specialized cold-chain logistics knowhow. Our solutions integrate "chain-of-condition," "chain-of-custody", and Chain of Compliance™ information into a single data stream. Our competencies and capabilities are used to develop solutions that are customized to our client's requirements. We provide comprehensive and reliable technology-centric alternatives to traditional cold chain distribution/logistics solutions. Our services are utilized for temperature controlled shipping and storage in the life sciences industry; e.g., personalized medicine, cell therapies, stem cells, cell lines, vaccines, diagnostic materials, semen, eggs, embryos, cord blood, bio-pharmaceuticals, infectious substances, and other commodities that require continuous exposure to certain ranges of precision controlled temperatures. As part of our services, our technologies provide the ability for us, or our client, to monitor location and other specified critical variables for each shipment in real time, which is recorded and archived for each shipment for scientific, quality assurance and regulatory purposes. This information enables an audit trail that can verify the '*in shipment*' condition of the life sciences commodity, material, product or therapy being shipped. Included in our tailored solutions, Cryoport's technology is designed to support clinical trials, Biologics License Applications (BLA), Investigational New Drug Applications and New Drug Application (NDA) with the United States Food and Drug Administration (FDA) as well as commercial distribution.

See the "Business" section in Part I, Item 1 of this Form 10-K for additional information.

Segment Reporting

Operating segments are defined as components of an enterprise about which separate financial information is available that is evaluated regularly by the chief operating decision maker in deciding how to allocate resources and in assessing operating performance. The chief operating decision maker is our Chief Executive Officer. In consideration of the Financial Accounting Standards Board's ("FASB") Accounting Standards Codification ("ASC") 280, *Segment Reporting*, we are not organized around specific products and services, geographic regions, or regulatory environments. Accordingly, we currently operate in one reportable segment.

Results of Operations

Results of Operations for Year Ended December 31, 2018 Compared to the Year Ended December 31, 2017

The following table summarizes certain information derived from our consolidated statements of operations:

	Year Ended December 31,								
	2018		2017 (unaudited)		$ Change		% Change		
	($ in 000's)								
Revenues	$ 19,626		$ 11,954		$ 7,672		64.2	%	
Cost of revenues	(9,386	)	(5,988	)	(3,398	)	56.8	%	
Gross margin	10,240		5,966		4,274		71.6	%	
General and administrative expenses	(9,799	)	(7,421	)	(2,378	)	32.0	%	
Sales and marketing expenses	(7,246	)	(5,232	)	(2,014	)	38.5	%	
Engineering and development expenses	(1,840	)	(1,206	)	(634	)	52.6	%	
Interest expense	(69	)	(15	)	(54	)	341	%	
Warrant inducement and repricing expense	(899	)	—		(899	)	100	%	
Other income (expense)	77		14		63		442	%	
Provision for income taxes	(20	)	(5	)	(15	)	288	%	
Net loss	$ (9,556	)	$ (7,899	)	$ (1,657	)	21.0	%	

Total revenues

	Year Ended December 31,			
	2018	2017	$ Change	% Change
	($ in 000's)			
Biopharmaceutical	$ 16,477	$ 9,113	$ 7,364	80.8 %
Reproductive medicine	2,173	1,706	467	27.3 %
Animal health	976	1,135	(159)	(14.0)%
Total revenues	$ 19,626	$ 11,954	$ 7,672	64.2 %

Revenues. We generated revenues from customers in all of our target life sciences markets, biopharma, reproductive medicine and animal health. Revenues increased $7.7 million or 64.2% to $19.6 million for the year ended December 31, 2018 as compared to $12.0 million for the year ended December 31, 2017. This increase was primarily driven by the continuing increase in the number of biopharmaceutical customers utilizing our services, the increase in clinical trials supported for these customers and the commencement of commercial revenue from the therapies launched by Novartis and Kite in late 2017. Biopharmaceutical revenue increased $7.4 million or 80.8%, to $16.5 million for the year ended December 31, 2018 compared to $9.1 million in 2017. During the year ended December 31, 2018, we added approximately 114 new biopharma clients and added 120 clinical trials, net of completed or terminated trials, of which 103 trials were in the Americas and 17 in EMEA. We now support 357 clinical trials in the Americas and EMEA compared to 237 clinical trials supported at the end of 2017. The number of Phase III clinical trials supported increased to 47 trials at the end of 2018, of which 38 trials were in the Americas and 9 in EMEA. This compares to 33 Phase III trials supported during 2017, of which 26 trials were in the Americas and 9 in EMEA. This increased activity in the clinical trial space is expected to drive future revenue growth as these clinical trials advance and resulting therapies are commercialized. Revenue for the commercial CAR-T therapies launched by Novartis and Kite in late 2017 were $2.1 million for the year ended December 31, 2018. Revenues in the reproductive medicine market increased by 27.3% for the year ended December 31, 2018, as compared to 2017. This increase was driven by a 32.3% increase in revenues in the U.S. market through continued success of our CryoStork® services offering and a 12.8% increase in revenues in the international markets, which was primarily a result of growth during the third quarter of 2018. Our revenues from animal health decreased 14.0% for the year ended December 31, 2018, as compared to 2017. Revenues from our largest animal health client, Zoetis, increased by 9.4%, however this increase was more than offset by the effect of a larger one-time laboratory move that was carried out during the second and third quarter of 2017, as well as one of our clients discontinuing a trial towards the end of 2017.

Gross margin and cost of revenues. Gross margin for the year ended December 31, 2018 was 52.2% of revenues, as compared to 49.9% of revenues for the year ended December 31, 2017. The increase in gross margin by approximately two percentage points is primarily due to economies of scale resulting from the increased business volume and pricing adjustments, which was partially offset by the running costs of our new global logistics centers in Livingston, New Jersey and Hoofddorp, The Netherlands that commenced operations during the third quarter of 2018. Our cost of revenues are primarily comprised of freight charges, payroll and associated expenses related to our global logistics centers, third-party charges for our European and Asian staging centers in the Netherlands and Singapore,

depreciation expenses of our Cryoport Express® Shippers and supplies and consumables used for our solutions. Cost of revenues increased $3.4 million, or 56.8%, to $9.4 million for the year ended December 31, 2018, as compared to $6.0 million in 2017. The increase in cost of revenues was primarily due to freight charges from the increased volume of shipments and an increase in operating costs for our global logistics centers.

General and administrative expenses**.** General and administrative expenses increased $2.4 million for the year ended December 31, 2018 or 32.0% as compared to the same period in 2017. This increase is primarily due to increases of $1.1 million in stock-based compensation, $554,100 for start-up costs for the new logistics centers in Livingston, New Jersey and Hoofddorp, The Netherlands, $268,300 in facility and inter-departmental costs, $211,000 in public company related expenses, including legal and audit fees, $143,900 in salaries and associated employee costs, $116,900 in insurance premiums, $30,700 in business travel expenses, $28,600 in the allowance for bad debt, $27,600 in patent and legal fees and $22,900 in the loss on disposal of furniture and fixtures. These increases were partially offset by a decrease of $156,500 for legal settlements incurred in 2017.

Sales and marketing expenses. Sales and marketing expenses increased $2.0 million or 38.5% and is primarily due to an increase of $1.1 million in salaries and associated employee costs, $441,600 in stock-based compensation, $224,600 in inter-departmental allocations, $84,600 in trade shows expenses, $79,500 in travel and lodging expenses and $65,800 in marketing and advertising promotions.

Engineering and development expenses. Engineering and development expenses increased $634,800 or 52.6% for the year ended December 31, 2018, as compared to the same period in 2017. The increase is primarily due to $410,100 in wages and associated employee costs to add a software development product manager, two senior engineers and a Chief Technology Officer, an increase in stock-based compensation of $208,200, an increase in inter-department and facility costs of $158,300, an increase in prototype and materials costs of $71,400 and an increase in travel and lodging of $9,700. These increases were partially offset by a reduction of $214,400 in testing expenses, and $16,300 in software maintenance expenses. We continually strive to improve and expand the features of our Cryoport Express® Solutions. Our primary developments are directed towards facilitating the safe, reliable and efficient shipment of life science commodities through innovative and technology-based solutions. We supplement our internal engineering and development resources with subject matter experts and consultants.

Warrant inducement and repricing expense. Warrant inducement and repricing expense increased $899,400 for the year ended December 31, 2018 which was due to the repricing of certain warrants for the tender offer that was completed in February 2018.

Interest expense. Interest expense increased $53,600 for the year ended December 31, 2018, as compared to the year ended December 31, 2017 due to the interest on the convertible note recorded in December 2018. Interest expense for the year ended December 31, 2017 included amortization of the debt discount on the related-party notes of $6,100 and the stated interest expense of $9,600.

Other income, net. The other income, net for the year ended December 31, 2018 is primarily due to interest income on our cash and cash equivalents and short-term investments.

Results of Operations for Year Ended December 31, 2017 Compared to the Year Ended December 31, 2016

The following table summarizes certain information derived from our consolidated statements of operations:

	Year Ended December 31,				
	2017	2016 (unaudited)	$ Change	% Change	
	($ in 000's)				
Revenues	$ 11,954	$ 7,679	$ 4,275	55.7	%

Cost of revenues	(5,988)	(4,578)	(1,410)	30.8 %
Gross margin	5,966	3,101	2,865	92.4 %
General and administrative expenses	(7,421)	(6,449)	(972)	15.1 %
Sales and marketing expenses	(5,232)	(4,820)	(412)	8.6 %
Engineering and development expenses	(1,206)	(598)	(608)	101.6 %
Interest expense	(15)	(139)	124	(88.7)%
Warrant inducement and repricing expense	—	(4,195)	4,195	(100)%
Other income (expense)	14	(7)	21	(311.8)%
Provision for income taxes	(5)	(6)	1	(9.3)%
Net loss	$ (7,899)	$ (13,113)	$ 5,214	(39.8)%

Total revenues

	Year Ended December 31, 2017	2016	$ Change	% Change
	($ in 000's)			
Biopharmaceutical	$9,113	$5,302	$3,811	71.9 %
Reproductive medicine	1,706	1,532	174	11.4 %
Animal health	1,135	845	290	34.3 %
Total revenues	$11,954	$7,679	$4,275	55.7 %

***Revenues*.** We generated revenues from customers in all of our target life sciences markets, such as biopharma, animal health and reproductive medicine. Revenues increased $4.3 million or 55.7% to $12.0 million for the year ended December 31, 2017, as compared to $7.7 million for the year ended December 31, 2016. This increase was primarily driven by the continuing increase in the number of biopharmaceutical customers utilizing our services and frequency of shipments compared to the prior year. Biopharmaceutical revenue increased $3.8 million or 71.9%, to $9.1 million for the year ended December 31, 2017, as compared to $5.3 million for the same period in 2016. During the year ended December 31, 2017, we added approximately 83 new biopharmaceutical clients and, as of December 31, 2017, supported 237 clinical trials (214 in the Americas and 23 in EMEA), of which 33 trials were in Phase III (26 in the Americas and 7 in EMEA). This increased activity in the clinical trial space is expected to drive future revenue growth as these clinical trials advance and resulting therapies are commercialized. Revenues in the reproductive medicine market increased by 11.4% for the year ended December 31, 2017, as compared to the same period in 2016. This increase is driven by our activities in the U.S. market, with a 43.8% increase in revenues in the U.S. through continued success of our targeted marketing campaigns, which was partially offset by a 32.5% decrease in revenues in the international markets as a result of regulatory uncertainties. Our revenues from animal health increased 34.3% for the year ended December 31, 2017, as compared to the same period in 2016, primarily driven by the international relocation of cell banks for a new client.

Gross margin and cost of revenues. Gross margin for the year ended December 31, 2017 was 49.9% of revenues, as compared to 40.4% of revenues for the same period in 2016. The increase in gross margin by almost ten percentage points was primarily due to the increased business volume and pricing adjustments combined with a reduction in freight as a percentage of revenues and a decrease of fixed manufacturing costs. Our cost of revenues are primarily comprised of freight charges, payroll and related expenses related to our operations center in California, third-party charges for our European and Asian staging centers in Holland and Singapore, depreciation expenses of our Cryoport Express® Shippers and supplies and consumables used for our solutions. Cost of revenues increased $1.4 million, or 30.8%, to $6.0 million for the year ended December 31, 2017, as compared to the same period in 2016. The increase in cost of revenues was primarily due to freight charges from the increased volume of shipments.

***General and administrative expenses*.** General and administrative expenses increased $971,600 for the year ended December 31, 2017 or 15.1% as compared to the same period in 2016. This increase is primarily due to an increase in public company related expenses in the amount of $429,600, salaries and associated employee costs of $367,900, stock-based compensation expense of $284,700 including legal fees, legal settlements of $162,700, insurance premiums of $102,800, implementation costs for a new ERP system of $89,000, patent and trademark legal fees of $74,400, travel and lodging expenses of $36,800 and bank charges and fees of $19,400. These increases were partially offset by decreases in depreciation and amortization of $202,400, allocated facility expenses of $172,900, the 2016 disposal of components used to manufacture our shippers in the amount of $121,700 due to our decision to co-develop and outsource the manufacturing of our shippers that was not incurred in 2017, a decrease of $33,500 for estimated bad debt, and a decrease in moving expenses incurred in 2016 of $10,000.

Sales and marketing expenses. Sales and marketing expenses increased $412,200 or 8.6% for the year ended December 31, 2017 as compared to the same period in 2016. This increase is primarily due to salaries and associated employee costs of $522,600, stock-based compensation expense of $95,700, facility expenses of $73,900, travel and

lodging expense of $62,700, implementation costs for a new ERP system of $57,800 and marketing trade shows of $18,200. This increase was partially offset by a reduction in outsourced marketing consulting of $448,900 as a result of bringing this function in-house.

Engineering and development expenses. Engineering and development expenses increased $607,600 or 101.6% for the year ended December 31, 2017, as compared to the same period in 2016. The increase is primarily due to $303,700 in wages and associated employee costs to add a software development product manager, senior engineer and Chief Technology Officer, $210,900 in testing expenses, facility expenses of $133,900 and an increase in stock-based compensation of $79,000. These increases were partially offset by a reduction of $148,100 in web portal expenses. We continually strive to improve and expand the features of our Cryoport Express® Solutions. Our developments are directed towards facilitating the safe, reliable and efficient shipment of life science commodities through innovative and technology-based solutions. During the year ended December 31, 2017, we made significant progress in developing the next generation of our Cryoportal™ logistics management platform. We also tested and upgraded the firmware and software of our SmartPak II™ Condition Monitoring System that tracks the key aspects of each shipment that could affect the quality and/or timing of delivery of the commodities shipped to its intended destination. We also incurred costs to design and validate additional new primary and secondary packaging solutions and accessories in response to requests from our customers. We supplement our internal engineering and development resources with subject matter experts and consultants.

Interest expense. Interest expense decreased $123,700, or 88.7%, for the year ended December 31, 2017, as compared to the same period in 2016. Interest expense for the year ended December 31, 2017 included amortization of the debt discount on the related-party notes of $6,100 and the stated interest expense of $9,600. Interest expense for the year ended December 31, 2016 included amortization of the debt discount on the related-party notes of $84,800 and the stated interest expense of $54,600.

Warrant inducement and repricing expense. Warrant repricing expense for the year ended December 31, 2016 was due to the repricing of certain warrants for the tender offer that was completed April 7, 2016.

Other income (expense), net. The other income (expense), net increased $21,100 for the year ended December 31, 2017 primarily due to an increase in interest income on larger cash balances and foreign exchange gains on accounts receivable and payable invoices partially offset by bank administrative charges.

Liquidity and Capital Resources

As of December 31, 2018, the Company had cash and cash equivalents of $37.3 million, $9.9 million in short-term investments and had working capital of $48.7 million. Historically, we have financed our operations primarily through sales of equity securities and debt instruments.

For the year ended December 31, 2018, we used $3.4 million of cash for operations primarily as a result of the net loss of $9.6 million offset by non-cash expenses of $7.7 million primarily comprised of amortization of debt discounts, stock-based compensation expense, and depreciation and amortization. Also contributing to the cash impact of our net operating loss, excluding non-cash items, was an increase in accounts receivable of $2.0 million, an increase in prepaids and other current assets of $235,800 offset by an increase in accounts payable and other accrued expenses of $405,100 and an increase in accrued compensation and related expenses of $336,700.

Net cash used in investing activities of $12.9 million during the year ended December 31, 2018 was primarily due to the $9.9 million purchase of short-term investments, capitalization of software development costs for our Cryoportal™ Logistics Management Platform, additional purchases of Cryoport Express® Shippers, Smart Pak II™ Condition Monitoring Systems and computer equipment as well as legal expenses incurred for patent and trademark applications.

Net cash provided by financing activities totaled $38.5 million during the year ended December 31, 2018, which resulted from net proceeds of $14.7 million from the convertible debt, net proceeds of 9.8 million from the issuance of 1,000,000 shares of common stock, net proceeds of $4.6 million from the February 2018 warrant tender offer, proceeds from the exercise of stock options and warrants of $6.0 million and net proceeds of $3.4 million from the ATM Prospectus.

The Company's management recognizes that the Company may need to obtain additional capital to fund its operations until sustained profitable operations are achieved. Additional funding plans may include obtaining additional capital through equity and/or debt funding sources. No assurance can be given that additional capital, if needed, will be available when required or upon terms acceptable to the Company. See "—Risks Related to Our Financial Condition — If we are unable to obtain additional funding, we may have to reduce or discontinue our business operations" in the "Risk Factors" section in Part I, Item 1A of this Form 10-K for additional information.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements within the meaning of Item 303(a)(4) of Regulation S-K.

Contractual Obligations

The following table summarizes our contractual obligations as of December 31, 2018, and the effects such obligations are expected to have on liquidity and cash flow in future periods ($ in '000's):

	Total	**Less than 1 Year**	**1-3 Years**	**3-5 Years**	**After 5 Years**
Contractual obligations					
Operating lease obligations[1]	$2,453	$ 526	$ 1,076	$ 741	$ 110
Capital lease obligations[2]	57	25	32	—	—
Convertible note[3]	15,000	—	—	15,000	—
Total	$17,510	$ 551	$ 1,108	$ 15,741	$ 110

(1) The operating lease obligations are primarily related to the facility lease for our principal executive office in Irvine, California under an operating lease expiring February 2023, subject to our option to extend the lease for two additional five-year periods. The initial base rent is approximately $24,700 per month. We also lease 8,100 square feet of logistics facilities in Livingston, New Jersey under an operating lease expiring December 2024, subject to our option to extend the lease for an additional five-year period. The initial base rent is approximately $7,600 per month. In addition, we lease 7,600 square feet of logistics facilities in Hoofddorp, The Netherlands under an operating lease expiring May 2023, subject to our option to extend the lease for two additional five-year periods. The initial base rent is approximately $5,400 per month. We also lease certain equipment which expire through January 2024.

(2) The Company acquired warehouse equipment under capital leases that are payable in various scheduled monthly installments through April 2021.

(3) Convertible note represents outstanding unsecured indebtedness bearing interest at the greater of (a) three -month LIBOR or (b) 2% plus the applicable margin of 6% on the outstanding balance of the note payable each quarter. The unpaid principal is due on December 14, 2023.

Impact of Inflation

From time to time, Cryoport experiences price increases from third party manufacturers and these increases cannot always be passed on to Cryoport’s customers. While these price increases have not had a material impact on Cryoport’s historical operations or profitability in the past, they could affect revenues in the future.

Critical Accounting Policies and Estimates

Our discussion and analysis of our consolidated financial condition and results of operations are based upon our consolidated financial statements, which have been prepared in conformity with accounting principles generally accepted in the U.S., or U.S. GAAP. The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities reported in our consolidated financial statements. The estimation process requires assumptions to be made about future events and conditions, and is consequently inherently subjective and uncertain. Actual results could differ materially from our estimates.

The SEC defines critical accounting policies as those that are, in management’s view, most important to the portrayal of our financial condition and results of operations and most demanding of our judgment. We consider the following policies to be critical to an understanding of our consolidated financial statements and the uncertainties associated

with the complex judgments made by us that could impact our results of operations, financial position and cash flows. See Note 2: "*Summary of Significant Accounting Policies*" of our accompanying consolidated financial statements for a description of our critical accounting policies and estimates.

New Accounting Pronouncements

See Note 2: "*Recent Accounting Pronouncements*" of our accompanying consolidated financial statements for a description of recent accounting pronouncements that may have a significant impact on our financial reporting and our expectations of their impact on our results of operations and financial condition.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Changes in United States interest rates would affect the interest earned on our cash and cash equivalents as well as short-term investments.

Based on our overall cash and cash equivalents interest rate exposure at December 31, 2018, a near-term change in interest rates, based on historical movements, would not have a material adverse effect on our financial position or results of operations.

We have operated primarily in the United States. Accordingly, we have not had any significant exposure to foreign currency rate fluctuations.

Item 8. Financial Statements and Supplementary Data

Our annual consolidated financial statements are included in Part IV, Item 15 of this Form 10-K and are incorporated into this Item 8 by reference.

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

None.

Item 9A. Controls and Procedures

36

(a) Evaluation of Disclosure Controls and Procedures

The term “disclosure controls and procedures” (defined in Rule 13a-15(e) under the Exchange Act refers to the controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files under the Exchange Act is recorded, processed, summarized and reported within the required time periods. Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we have conducted an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures, as of December 31, 2018. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of December 31, 2018 to ensure the timely disclosure of required information in our SEC filings.

(b) Management’s Report on Internal Control Over Financial Reporting.

Management’s Report on Internal Control Over Financial Reporting which appears on the following page is incorporated herein by reference.

KMJ Corbin & Company LLP, an independent registered public accounting firm, has audited the effectiveness of our internal control over financial reporting as of December 31, 2018, as stated in its attestation report included in Item 8. “Financial Statements and Supplementary Data” included elsewhere in this Annual Report on Form 10-K.

(c) Changes In Internal Control Over Financial Reporting

During the quarter ended December 31, 2018, there were no changes in our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

37

CRYOPORT, INC.

MANAGEMENT’S REPORT ON

INTERNAL CONTROL OVER FINANCIAL REPORTING

The management of the Company is responsible for establishing and maintaining effective internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) and for the assessment of the effectiveness of internal control over financial reporting. 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 consolidated financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America.

The Company’s internal control over financial reporting is supported by written policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the Company’s assets;

- provide reasonable assurance that transactions are recorded as necessary to permit preparation of consolidated financial statements in accordance with accounting principles generally accepted in the United States of America, 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 consolidated financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In connection with the preparation of the Company’s annual consolidated financial statements, management of the Company has undertaken an assessment of the effectiveness of the Company’s internal control over financial reporting based on criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Management’s assessment included an evaluation of the design of the Company’s internal control over financial reporting and testing of the operational effectiveness of the Company’s internal control over financial reporting.

Based on this assessment, management has concluded that the Company's internal control over financial reporting was effective as of December 31, 2018.

By: /s/ JERRELL W. SHELTON
Jerrell W. Shelton,
Chief Executive Officer and Director

By: /s/ ROBERT STEFANOVICH
Robert Stefanovich,
Chief Financial Officer

March 13, 2019

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The following table sets for the name and age of each director and executive officer, the year first elected as a director and/or executive officer and the position(s) held with the Company.

Name	Age	Position	Date Elected
Jerrell W. Shelton	73	Chairman, President and Chief Executive Officer	2012
Richard J. Berman	76	Director	2015
Daniel M. Hancock	68	Director	2019
Robert Hariri, M.D., Ph.D.	60	Director	2015
Ramkumar Mandalam, Ph.D.	54	Director	2014
Edward J. Zecchini	59	Director	2013
Robert S. Stefanovich	54	Chief Financial Officer, Treasurer and Corporate Secretary	2011

Jerrell W. Shelton. Mr. Shelton became a member of our board of directors in October 2012 and was appointed President and Chief Executive Officer of the Company in November 2012. He was appointed Chairman of the Board in October 2015. He served on the Board of Directors and standing committees of Solera Holdings, Inc. from April 2007 through November 2011. From June 2004 to May 2006, Mr. Shelton was the Chairman and CEO of Wellness, Inc., a provider of advanced, integrated hospital and clinical environments. Prior to that, he served as Visiting Executive to IBM Research and Head of IBM's WebFountain. From October 1998 to October 1999, Mr. Shelton was Chairman, President and CEO of NDC Holdings II, Inc. Between October 1996 and July 1998, he was President and CEO of Continental Graphics Holdings, Inc. And from October 1991 to July 1996, Mr. Shelton served as President and CEO of Thomson Business Information Group. Mr. Shelton has a B.S. in Business Administration from the University of Tennessee and an M.B.A. from Harvard University. Mr. Shelton's extensive leadership, management, strategic planning and financial expertise through his various leadership and directorship roles in public, private and global companies, makes him well-qualified to serve as a member of the board of directors.

Richard J. Berman. Mr. Berman became a member of our board of directors in January 2015 and serves as Chairman of the Audit Committee and member of the Compensation Committee and Nomination and Governance Committee of our board of directors. Mr. Berman's business career spans over 35 years of venture capital, senior management and merger & acquisitions experience. Mr. Berman has served as a director and/or officer of over a dozen public and private companies. From 2006 to 2011, he was Chairman of National Investment Managers, a company with $12 billion in pension administration assets. Mr. Berman is a director of four publicly traded healthcare companies: Advaxis, Inc., Catasys, Inc., Cryoport Inc. and Immuron Limited. From 2002 to 2010, he was a director of Nexmed Inc. where he also served as Chairman/CEO in 2008 and 2009 (formerly Apricus Biosciences, Inc.); From

1998 to 2000, he was employed by Internet Commerce Corporation (now Easylink Services) as Chairman and CEO, and was a director from 1998 to 2012. Previously, Mr. Berman worked at Goldman Sachs; was Senior Vice President of Bankers Trust Company, where he started the M&A and Leveraged Buyout Departments; created the largest battery company in the world in the 1980's by merging Prestolite, General Battery and Exide to form Exide Technologies (XIDE); helped to create what is now Soho (NYC) by developing five buildings; and advised on over $4 billion of M&A transactions. He is a past Director of the Stern School of Business of NYU where he obtained his BS and MBA. He also has U.S. and foreign law degrees from Boston College and The Hague Academy of International Law, respectively. Mr. Berman's financial and business expertise, including his background in biotechnology, international management and banking, and his extensive experience as a director in the public company context makes him well-qualified to serve as a member of the board of directors.

Daniel M. Hancock. Mr. Hancock was appointed to Cryoport's board of directors in January 2019 and serves as member of the Audit Committee and Scientific and Technology Committee. Mr. Hancock is currently President of DMH Strategic Consulting LLC. He retired from General Motors ("GM") in 2011, after 43 years of service in GM's powertrain engineering and general management functions. His last position with GM was Vice President, Global Strategic Product Alliances. During this period, he served as Chairman of GM's DMAX and VM Motori diesel engine joint ventures with Isuzu and Fiat, respectively. Mr. Hancock's previous appointments at GM included: Vice President, Global Powertrain Engineering; CEO, Fiat-GM Powertrain; and President, Allison Transmission Division. Mr. Hancock is a director of Westport Fuel Systems (NASDAQ WPRT), a Vancouver, B.C. based global supplier of clean gaseous fuel parts, and systems for the transportation industry. He is also serving as chairman of the board of SuperTurbo Technologies, Inc., a Loveland, CO based privately-held developer of advanced turbo compounding systems for engines and director of Achates Power, Inc., a San Diego, CA headquartered privately-held developer of innovative opposed-piston, two-stroke diesel engines. In addition, Mr. Hancock serves in an advisory capacity to several global suppliers to the automotive and commercial vehicle industries. He was President of SAE International in 2014 and is a member of the National Academy of Engineering. He received a master's degree in mechanical engineering from Massachusetts Institute of Technology (MIT) and a bachelor's degree also in mechanical engineering from General Motors Institute (now Kettering University), Michigan. We believe Mr. Hancock's global business experience, strong business acumen, and extensive technical expertise qualifies him well to serve as a member of the board of directors.

Robert Hariri, M.D., Ph.D. Dr. Hariri, M.D., Ph.D. became a member of our board of directors in September 2015 and serves as Chairman of the Scientific and Technology Committee and member of the Audit Committee and Nomination and Governance Committee of our board of directors. Dr. Hariri is a visionary surgeon, scientist, aviator and entrepreneur and serves the Founder, Chairman and CEO of Celularity, one of the world's largest human cellular therapeutics companies. Previously, he served as the CEO of the Cellular Therapeutics Division of Celgene Corporation. Prior to joining Celgene Cellular Therapeutics as president in 2002, Dr. Hariri was founder, chairman and chief scientific officer at Anthrogenesis Corporation/LIFEBANK, Inc., a privately held biomedical technology and service corporation involved in the area of human stem cell therapeutics, which was acquired by Celgene in 2002. Dr. Hariri is also co-founder and president of Human Longevity, Inc., a genomics and cell-therapy company. He serves on numerous Boards of Directors including Bionik Laboratories Corp (OTCQX: BNKL), Myos Corporation (Nasdaq: MYOS), Provista Diagnostics and is a member of the Board of Visitors of the Columbia University School of Engineering &Applied Sciences and the Science &Technology Council of the College of Physicians and Surgeons; as well as a member of the Scientific Advisory Board for the Archon X PRIZE for Genomics, which is awarded by the X Prize Foundation. Dr. Hariri is also a Trustee of the Liberty Science Center and has been appointed Commissioner of Cancer Research by New Jersey Governor, Chris Christie. Dr. Hariri was recipient of the Thomas Alva Edison Award in 2007 and 2011, and has received numerous other honors for his many contributions to biomedicine and aviation. He has pioneered the use of stem cells to treat a range of life threatening diseases and has over 140 issued and pending patents, has authored over 100 published chapters, articles and abstracts and is most recognized for his discovery of pluripotent stem cells from the placenta as a member of the team which discovered TNF (tumor necrosis factor). A jet-rated commercial pilot with thousands of hours of flight time in over 60 different military and civilian aircraft, Dr. Hariri is a founder of the Rocket Racing League, an extreme aerospace corporation and Jet-A Aviation, a heavy-jet charter airline. Dr. Hariri received his undergraduate training at Columbia College and Columbia University School of Engineering and Applied Sciences and was awarded his M.D. and Ph.D. degrees from Cornell University Medical College. Dr. Hariri received his surgical training at The New York Hospital-Cornell Medical Center where he also directed the Aitken Neurosurgery Laboratory and the Center for Trauma Research. Dr. Hariri's training as a scientist, his knowledge and experience with respect to the biomedical and pharmaceutical industries and his extensive research and experience makes him well-qualified to serve as a member of the board of directors.

Ramkumar Mandalam, Ph.D. Dr. Mandalam became a member of our board of directors in June 2014 and serves as Chairman of the Governance and Nomination Committee and member of the Compensation Committee our board of directors. Dr. Mandalam is the President and CEO of Cellerant Therapeutics, Inc., a clinical stage biotechnology company developing novel cell-based and antibody therapies for cancer treatment and blood-related disorders. Under his leadership, Cellerant has developed a pipeline of candidates for treatment of heamatological malignancies and has rapidly expanded from an early-stage to an advanced clinical-stage company. Prior to joining Cellerant in 2005, he was the Executive Director of Product Development at Geron Corporation, a biopharmaceutical company where he managed the development and manufacturing of cell based therapies for treatment of degenerative diseases and cancer. From 1994 to 2000, he held various positions in research and development at Aastrom Biosciences, where he was responsible for programs involving ex vivo expansion of human bone marrow stem cells and dendritic cells. Dr. Mandalam received his Ph.D. in Chemical Engineering from the University of Michigan, Ann Arbor, Michigan. Dr. Mandalam is the author or co-author of several publications, patent applications, and abstracts. Dr. Mandalam's training as a scientist, extensive background in biotechnology and management expertise and makes him well-qualified to serve as a member of the board of directors.

Edward J. Zecchini. Mr. Zecchini became a member of our board of directors in September 2013 and serves as Chairman of the Compensation Committee and member of the Audit Committee and Scientific and Technology Committee our board of directors. Mr. Zecchini currently serves as Chief Information Officer at Remedy Partners, Inc. Mr. Zecchini is a director of the publicly traded healthcare company Catasys, Inc. Prior to that, Mr. Zecchini served as Executive Vice President and Chief Technology Officer at Sandata Technologies, LLC, from May 2010 to March 2014, President and Chief Executive Officer of IT Analytics LLC from March 2008 to April 2010, Executive Vice President of Operations and Chief Information Officer of Touchstone Healthcare Partnership from May 2007 to February 2008 and Senior Vice President and Chief Information Officer of HealthMarkets, Inc. from October 2004 to April 2007. Earlier in his career he held senior level positions at Thomson Healthcare and SportsTicker, Inc. Mr. Zecchini has over thirty years of experience in the healthcare and information technology industries. Mr. Zecchini holds a Bachelor of Arts degree from the State University of New York at Oswego. Mr. Zecchini's business expertise, including his background and extensive experience information technology and management makes him well-qualified to serve as a member of the board of directors.

Robert S. Stefanovich. Mr. Stefanovich became Chief Financial Officer, Treasurer and Corporate Secretary for the Company in June 2011. From June 15, 2012 to November 4, 2012, Mr. Stefanovich served as the Principal Executive Officer of the Company. From November 2007 through March 2011, Mr. Stefanovich served as Chief Financial Officer of Novalar Pharmaceuticals, Inc., a venture-backed specialty pharmaceutical company. Prior to that, he held several senior positions, including interim Chief Financial Officer of Xcorporeal, Inc., a publicly traded medical device company, Executive Vice President and Chief Financial Officer of Artemis International Solutions Corporation, a publicly traded software company, Chief Financial Officer and Secretary of Aethlon Medical Inc., a publicly traded medical device company and Vice President of Administration at SAIC, a Fortune 500 company. Mr. Stefanovich also served as a member of the Software Advisory Group and an Audit Manager with Price Waterhouse LLP's (now PricewaterhouseCoopers) hi-tech practice in San Jose, CA and Frankfurt, Germany. He currently also serves as a board member of Project InVision International, a provider of business performance improvement solutions. He received his Masters of Business Administration and Engineering from University of Darmstadt, Germany.

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Exchange Act requires the Company's directors and executive officers, and persons who own more than 10% of a registered class of the Company's equity securities, to file with the SEC reports of beneficial ownership and reports of changes in beneficial ownership in the Company's securities. Such directors, executive officers and 10% stockholders are also required to furnish the Company with copies of all Section 16(a) forms they file.

Based solely on a review of the copies of such forms received by it, the Company believes that during the year ended December 31, 2018, all Section 16(a) filings applicable to its directors, officers, and 10% stockholders were filed on a timely basis.

Director Independence

Our board of directors is responsible for determining the independence of our directors. For purposes of determining director independence, our board of directors has applied the definitions set forth in NASDAQ Rule 5605(a)(2) and the related rules of the SEC. Based upon its evaluation, our board of directors has affirmatively determined that the following directors meet the standards of independence: Mr. Berman, Dr. Hariri, Dr. Mandalam and Mr. Zecchini.

Committees of the Board of Directors

Our board of directors has established an Audit Committee, a Compensation Committee, Nomination and Governance Committee and a Science and Technology Committee. Charters for each of these committees is available on the Company's website at www.cryoport.com on the "Investor Relations: Corporate Governance" page under the heading "About Us." Information on the website does not constitute a part of this registration statement.

Audit Committee

The functions of the Audit Committee are to (i) review the qualifications of the independent auditors, our annual and interim financial statements, the independent auditor's report, significant reporting or operating issues and corporate policies and procedures as they relate to accounting and financial controls; and (ii) to consider and review other matters relating to our financial and accounting affairs.

The current members of the Audit Committee are Mr. Berman, who is the Audit Committee Chairman, Mr. Hancock, Dr. Hariri and Mr. Zecchini. The Company has determined that (i) Mr. Berman qualifies as an "audit committee financial expert" as defined under the rules of the SEC and is "independent" within the meaning of NASDAQ Rule 5605(a)(2) and the applicable laws and regulations of the SEC, and (ii) Dr. Hariri and Mr. Zecchini meet NASDAQ's financial literacy and financial sophistication requirements and are "independent" within the meaning of NASDAQ Rule 5605(a)(2) and the applicable laws and regulations of the SEC.

Compensation Committee

The purpose of the Compensation Committee is to discharge our board of directors' responsibilities relating to compensation of the Company's directors and executive officers, to produce an annual report on executive compensation for inclusion in the Company's annual proxy statement, as necessary, and to oversee and advise our board of directors on the adoption of policies that govern the Company's compensation programs, including stock incentive and benefit plans.

The current members of the Compensation Committee are Mr. Zecchini, who is the Compensation Committee Chairman, Dr. Mandalam and Mr. Berman, each of whom is independent under applicable independence requirements. Each of the current members of the Compensation Committee is a "non-employee director" under Section 16 of the Exchange Act and an "outside director" for purposes of Section 162(m) of the Code.

Nomination and Governance Committee

The functions of the Nomination and Governance Committee are to (i) make recommendations to our board of directors regarding the size of our board of directors, (ii) make recommendations to our board of directors regarding criteria for the selection of director nominees, (iii) identify and recommend to our board of directors for selection as director nominees individuals qualified to become members of the Board, (iv) recommend committee assignments to our board of directors, (v) recommend to our board of directors corporate governance principles and practices appropriate to the Company, and (vi) lead our board of directors in an annual review of its performance.

The current members of the Nomination and Governance Committee are Dr. Mandalam, who is the Nomination and Governance Committee Chairman, Mr. Berman and Dr. Hariri.

Science and Technology Committee

The purpose of the Science and Technology Committee is to oversee matters pertaining to the Company's strategic direction as related to product and services serving the cellular therapy business and investments in research, development, and technology relating thereto. The committee may include director and persons who are not directors. The current members of the Science and Technology Committee are Dr. Robert Hariri, M.D., Ph.D., who is the Science and Technology Committee Chairman, Mr Hancock and Mr. Zecchini.

Corporate Code of Conduct

The Company has adopted a corporate code of conduct that applies to its directors and all employees, including the Company's Chief Executive Officer and Chief Financial Officer. The Company has posted the text of its corporate code of conduct on the Company's website at www.cryoport.com on the "Investor Relations: Corporate Governance" page under the heading "Governance Documents".

Item 11. Executive Compensation

SUMMARY COMPENSATION TABLE

The following table contains information with respect to the compensation of our Chief Executive Officer and Chief Financial Officer for the years ended December 31, 2018 and 2017. We refer to our Chief Executive Officer and Chief Financial Officer as our "Named Executive Officers."

Name and Principal Position	Year	Salary (1) ($)	Bonus ($)	Option Awards (2) ($)	All Other Compensation ($)	Total Compensation ($)
Jerrell W. Shelton	2018	581,250	—	2,091,151 (3)	—	2,672,401
President and Chief Executive Officer	2017	435,417	100,000(5)	986,471 (3)	—	1,521,888

Robert S. Stefanovich	2018	293,625	—		478,698	(4)	—	772,323
Chief Financial Officer	2017	277,187	60,000	(5)	218,435	(4)	—	555,622

(1) This column represents the dollar value of base salary earned during each fiscal year indicated.

(2) This amount represents the total grant date fair value of all stock option awards at the date of grant. Pursuant to SEC rules, the amount shown excludes the impact of estimated forfeitures related to service-based vesting conditions. For information on the valuation assumptions with respect to the grants made during the years ended December 31, 2018 and 2017, see Note 2 "Summary of Significant Accounting Policies" in the accompanying consolidated financial statements.

(3) Based on the recommendation of the Compensation Committee and approval by our board of directors, on March 28, 2018 and May 23, 2017, Mr. Shelton was granted an option to purchase 290,000 and 340,000 shares, respectively, of common stock in connection with his service as Chief Executive Officer of the Company. The exercise prices of the options are equal to or greater than the fair value of the Company's stock as of the respective grant dates.

(4) Based on the recommendation of the Compensation Committee and approval by our board of directors, on March 28, 2018 and May 18, 2017, Mr. Stefanovich was granted an option to purchase 66,300 and 81,000 shares of common stock, respectively, of common stock in connection with his service as Chief Financial Officer of the Company. The exercise prices of the options are equal to or greater than the fair value of the Company's stock as of the respective grant dates.

(5) This amount represents the bonus earned for the year ended December 31, 2017 as approved by the Compensation Committee of our board of directors.

Narrative Disclosure to Summary Compensation Table

Employment Contracts

Jerrell W. Shelton

On June 28, 2013, the Company entered into an employment agreement (the "Prior Agreement") with Mr. Shelton with respect to his employment as President and Chief Executive Officer. The Prior Agreement was effective through May 14, 2017 (the "Term").

The Prior Agreement provided an initial annual base salary of $300,000 during the Term. In addition, on the date of the Prior Agreement, Mr. Shelton was awarded options giving him the right to acquire an aggregate of 325,209 shares of the Company's common stock at an exercise price equal to the closing price of the Company's common stock on the date of the Prior Agreement, or $3.24 per share, and such options were granted outside of the Company's incentive plans. The option vested immediately with respect to 13,551 shares and the remaining right to purchase the remaining shares vested in equal monthly installments on the fifth day of each month for forty-six months beginning on July 5, 2013 and ending on May 5, 2017; provided that such vesting will be accelerated on the date that the Company files a Form 10-Q or Form 10-K indicating an income from operations for the Company in two consecutive fiscal quarters and immediately in the event of a change of control of the Company.

Mr. Shelton had agreed during the Term and for a period of one year following the termination of the Prior Agreement, not to solicit, induce, entice or attempt to solicit, induce, or entice any employee of the Company to leave employment with the Company. Payments due to Mr. Shelton upon a termination of the Prior Agreement are described below.

On May 26, 2017, the Company entered into a new employment agreement effective June 1, 2017 (the "New Agreement") with Mr. Shelton with respect to his employment as President and Chief Executive Officer of the Company.

The New Agreement provides for an annual base salary in an amount determined by the Company's Compensation Committee of the Board of Directors of the Company and Mr. Shelton's annual base salary was increased to $550,000 effective on June 1, 2017 and increased to $600,000 in May 2018. Mr. Shelton is eligible to participate in the equity incentive plans and cash bonus plans adopted by the Company from time-to-time. Mr. Shelton has agreed not to solicit or encourage or attempt to solicit or encourage any employee of the Company to leave employment with the Company during the term of the Agreement and for a period of eighteen months following the termination of the Agreement. The Agreement expires on June 1, 2021. Payments due to Mr. Shelton upon a termination of the New Agreement are described below.

Robert S. Stefanovich

Although the Company does not have a written employment agreement with Mr. Stefanovich, pursuant to the terms of his offer letter, the Company agreed to pay Mr. Stefanovich an annual base salary and he is eligible for an incentive bonus targeted at 25% of his annual base salary which was increased to 40% in May 2018. His annual base salary was increased to $283,000 in May 2017 and $300,000 in May 2018. Mr. Stefanovich is eligible to participate in all employee benefits plans or arrangements which may be offered by the Company during the term of employment. The Company shall pay the cost of Mr. Stefanovich's health insurance coverage in accordance with the Company's plans and policies while he is an employee of the Company. Mr. Stefanovich is also eligible for twenty (20) paid time off days a year, and is entitled to receive fringe benefits ordinarily and customarily provided by the Company to its senior officers. Payments due to Mr. Stefanovich upon a termination of his employment with the Company are described below.

The Company has no other employment agreements with executive officers of the Company as of December 31, 2018.

OUTSTANDING EQUITY AWARDS AT DECEMBER 31, 2018

The following table shows information regarding unexercised stock options held by our Named Executive Officers as of December 31, 2018:

Name	Number of Securities Underlying Unexercised Options (#) Exercisable		Number of Securities Underlying Unexercised Options (#) Unexercisable	Equity Incentive Plan Awards Number of Securities Underlying Unexercised Unearned Options (#)	Option Exercise Price ($)	Option Expiration Date
Jerrell W. Shelton	8,334	(1)	—	—	$ 2.28	10/22/22
	83,334	(2)	—	—	$ 2.40	11/5/22
	325,209	(3)	—	—	$ 3.24	6/28/23
	369,700	(4)	—	—	$ 4.80	12/18/24
	196,987	(5)	22,905	—	$ 7.80	5/07/25
	669,167	(6)	137,833	—	$ 5.00	8/20/25
	156,358	(7)	99,166	—	$ 1.87	5/06/26
	134,583	(8)	205,417	—	$ 3.44	5/23/27
	235,625	(9)	54,375	—	$ 8.65	3/28/2028
Robert Stefanovich	10,417	(10)	—	—	$ 10.32	6/20/21
	5,000	(11)	—	—	$ 5.16	8/3/22
	69,918	(12)	—	—	$ 3.24	6/28/23
	73,334	(13)	—	—	$ 4.80	12/18/24
	51,499	(14)	5,985	—	$ 7.80	5/07/25
	147,667	(15)	29,533	—	$ 3.07	8/20/25
	47,812	(16)	87,188	—	$ 1.87	5/06/26
	32,062	(17)	48,938		$ 3.21	5/18/27
	12,431	(18)	53,869		$ 8.65	3/28/28

(1) Based on the recommendation of the Compensation Committee and approval by our board of directors, Mr. Shelton was granted an option to purchase 8,334 shares of common stock exercisable at $2.28 per share on October 22, 2012 upon joining the board of directors. Options vests in twelve equal monthly installments. The exercise price for shares of common stock pursuant to the options is equal to the fair value of the Company's stock as of the grant date.

(2) Based on the recommendation of the Compensation Committee and approval our board of directors, Mr. Shelton was granted an option to purchase 137,500 shares of common stock exercisable at $2.40 per share on November 5, 2012, which vests in six equal monthly installments. 54,166 of these options were issued under the 2011 stock option plan and exercised in May and November 2013 and 83,884 were issued outside of a plan. The exercise price

for shares of common stock pursuant to the option is equal to the fair value of the Company's stock as of the grant date.

(3) Based on the recommendation of the Compensation Committee and approval our board of directors, Mr. Shelton was granted an option to purchase 325,209 shares of common stock exercisable at $3.24 per share on June 28, 2013. The option vests 2/48th immediately with the remainder vesting 1/48th per month for 46 months. The exercise price for the shares of common stock pursuant to the option is equal to the fair value of the Company's stock on the date of grant.

(4) Based on the recommendation of the Compensation Committee and approval by our board of directors, Mr. Shelton was granted an option to purchase 387,501 shares of common stock exercisable at $4.80 per share on December 18, 2014. The option vests in monthly installments over a four year period, 262,500 shares were issued outside of a plan. The exercise price for the shares of common stock pursuant to the option is equal to the fair value of the Company's stock on the date of grant.

(5) Based on the recommendation of the Compensation Committee and approval by our board of directors, Mr. Shelton was granted an option to purchase 219,892 shares of common stock exercisable at $7.80 per share on May 7, 2015. The option vests in monthly installments over a four year period, 219,892 shares were issued outside of a plan. The exercise price for the shares of common stock pursuant to the option is equal to the fair value of the Company's stock on the date of grant.

(6) Based on the recommendation of the Compensation Committee and approval by our board of directors, Mr. Shelton was granted an option to purchase 827,000 shares of common stock exercisable at $3.07 per share on August 20, 2015, subject to stockholder approval of the 2015 Omnibus Equity Incentive Plan which occurred on November 20, 2015. The award was amended on February 3, 2016 to increase the exercise price of the option from $3.07 to $5.00. The option vests in monthly installments over a four year period. The exercise price for the shares of common stock pursuant to the option is equal to or more than the fair value of the Company's stock on the date of grant.

(7) Based on the recommendation of the Compensation Committee and approval by our board of directors, Mr. Shelton was granted an option to purchase 280,000 shares of common stock exercisable at $1.87 per share on May 6, 2016. The option vests in monthly installments over a four year period. The exercise price for the shares of common stock pursuant to the option is equal to the fair value of the Company's stock on the date of grant.

(8) Based on the recommendation of the Compensation Committee and approval by our board of directors, Mr. Shelton was granted an option to purchase 340,000 shares of common stock exercisable at $3.44 per share on May 23, 2017. The option vests in monthly installments over a four year period. The exercise price for the shares of common stock pursuant to the option is equal to the fair value of the Company's stock on the date of grant.

(9) Based on the recommendation of the Compensation Committee and approval by our board of directors, Mr. Shelton was granted an option to purchase to purchase 290,000 shares of common stock exercisable at $8.65 per share on March 28, 2018. The option vests in monthly installments over a four year period. The exercise price for the shares of common stock pursuant to the option is equal to the fair value of the Company's stock on the date of grant.

(10) Based on the recommendation of the Compensation Committee and approval by our board of directors, Mr. Stefanovich was granted an option to purchase 10,417 shares of common stock exercisable at $10.32 per share on June 20, 2011. The option vests in six month installments over a four year period. The exercise price for the shares of common stock pursuant to the option is equal to the fair value of the Company's stock on the date of grant.

(11) Based on the recommendation of the Compensation Committee and approval by our board of directors, Mr. Stefanovich was granted an option to purchase 5,000 shares of common stock exercisable at $5.16 per share on August 3, 2012. The option vests in six month installments over a four year period. The exercise price for the shares of common stock pursuant to the option is equal to the fair value of the Company's stock on the date of grant.

(12) Based on the recommendation of the Compensation Committee and approval by our board of directors, Mr. Stefanovich was granted an option to purchase 69,918 shares of common stock exercisable at $3.24 per share on June 28, 2013. The options vest in equal monthly installments over four years. The exercise price for the shares of common stock pursuant to the option is equal to the fair value of the Company's stock on the date of grant.

(13) Based on the recommendation of the Compensation Committee and approval by our board of directors, Mr. Stefanovich was granted an option to purchase 73,334 shares of common stock exercisable at $4.80 per share on December 18, 2014. The options vest in equal monthly installments over four years. The exercise price for the shares of common stock pursuant to the option is equal to the fair value of the Company's stock on the date of grant.

(14) Based on the recommendation of the Compensation Committee and approval by our board of directors, Mr. Stefanovich was granted an option to purchase 57,484 shares of common stock exercisable at $7.80 per share on May 7, 2015. The options vest in equal monthly installments over a four year period, 57,484 shares were issued outside of a plan. The exercise price for the shares of common stock pursuant to the option is equal to the fair value of the Company's stock on the date of grant.

(15) Based on the recommendation of the Compensation Committee and approval by our board of directors , Mr. Stefanovich was granted an option to purchase 177,200 shares of common stock exercisable at $3.07 per share on August 20, 2015, subject to stockholder approval of the 2015 Omnibus Equity Incentive Plan which occurred on November 20, 2015. The option vests in monthly installments over a four year period. The exercise price for the shares of common stock pursuant to the option is equal to or more than the fair value of the Company's stock on the date of grant.

(16) Based on the recommendation of the Compensation Committee and approval by our board of directors, Mr. Stefanovich was granted an option to purchase 135,000 shares of common stock exercisable at $1.87 per share on May 6, 2016. The option vests in monthly installments over a four year period. The exercise price for the shares of common stock pursuant to the option is equal to the fair value of the Company's stock on the date of grant.

(17) Based on the recommendation of the Compensation Committee and approval by our board of directors, Mr. Stefanovich was granted an option to purchase 81,000 shares of common stock exercisable at $3.21 per share on May 18, 2017. The option vests in monthly installments over a four year period. The exercise price for the shares of common stock pursuant to the option is equal to the fair value of the Company's stock on the date of grant.

(18) Based on the recommendation of the Compensation Committee and approval by our board of directors, Mr. Stefanovich was granted an option to purchase 66,300 shares of common stock exercisable at $8.65 per share on March 28, 2018. The option vests in monthly installments over a four year period. The exercise price for the shares of common stock pursuant to the option is equal to the fair value of the Company's stock on the date of

grant.

Potential Payments On Termination Or Change In Control

Pursuant to Mr. Shelton's Prior Agreement, if Mr. Shelton would have terminated the Prior Agreement, died, or had been terminated for "Cause" (as defined in the Prior Agreement), he would have been entitled to all compensation and benefits that he earned through the date of termination. If he had been terminated for Cause, the Company could have, to the extent allowed by law, set off losses, fines or damages that he had caused as a result of his misconduct. If he had been terminated "without cause" (as defined in the Prior Agreement), he would have been entitled to a continuation of his base salary for three months following termination and one half (½) of unvested options as of date of termination would have become fully vested. In the event the Company had terminated his employment, except if for "Cause" (as defined in the Prior Agreement), within twelve months after a Change in Control (as defined in the Cryoport, Inc. 2011 Stock Incentive Plan), then, Mr. Shelton would have been entitled to: (i) the continuation of his base salary for twelve months following the date of termination, which would have been paid in accordance with the Company's ordinary payroll practices in effect from time to time, and would have begun on the first payroll period immediately following the date on which the general release and waiver became irrevocable; and (ii) all options previously granted to Mr. Shelton would have become fully vested and exercisable as of the date of termination of employment.

If Mr. Shelton terminates the New Agreement, he dies, or he is terminated for cause, he will be entitled to all compensation and benefits that he earned through the date of termination. If he is terminated without cause or he terminates for good reason, he will be entitled to continuation of base salary for eighteen months following termination and one half of unvested options as of date of termination shall become fully vested; provided that if the termination date is within twelve months after a change in control of the Company, then all of the unvested options as of such date will become fully vested.

Pursuant to Mr. Stefanovich’s employment offer, in the event that Mr. Stefanovich’s employment with the Company is terminated as a result of a “change of control,” as is defined in the Company’s 2009 Stock Incentive Plan, he will be entitled to receive a severance payment equal to twelve months of his base salary, continuation of health benefits for a period of twelve months, and the unvested portion of his stock option grants immediately shall vest in full. Separately, in the event his employment is terminated by the Company for reasons other than cause, Mr. Stefanovich will be entitled to receive a severance payment equal to six months of his base salary plus continuation of health benefits for a period of six months following his termination of employment.

The Cryoport, Inc. 2018 Omnibus Equity Incentive Plan, 2015 Omnibus Equity Incentive Plan, the Cryoport, Inc. 2011 Stock Incentive Plan and the Cryoport, Inc. 2009 Stock Incentive Plan each provide that if a “change in control” occurs, the Compensation Committee has the discretion to provide in the applicable option agreement that any outstanding awards shall become fully vested and exercisable.

The Company does not provide any additional payments to the named executive officers upon their resignation, termination, retirement, or upon a change of control.

Change in Control Agreements

There are no understandings, arrangements or agreements known by management at this time which would result in a change in control of the Company or any subsidiary.

DIRECTOR COMPENSATION

Compensation for our board of directors is governed by the Company’s Compensation Committee.

Director Fees

Effective October 1, 2015 through June 23, 2017, the compensation plan for non-employee directors was as follows:

Director fees were paid in cash, restricted shares of the Company's common stock or a combination thereof, at the option of the director.

Option 1: Annual cash compensation of $40,000, paid quarterly,

Option 2: Annual cash compensation of $13,333, paid quarterly and $26,667 converted into common stock using the volume weighted average price ("VWAP") of the stock for the last five days of the trading month ending each quarter; or

Option 3: No annual cash compensation but $40,000 converted into common stock using the VWAP of the stock for the last five days of the trading month ending each quarter and paid quarterly. This option carries a 15% premium, as there is no cash outlay to the Company. The calculation would be $40,000 X 1.15 = $46,000/VWAP.

In addition to the compensation options above the following compensation apply to non-employee directors chairing a committee of our board of directors. This compensation was paid on the same basis as the director chose from the options described above:

Chairman/Lead Director	$25,000
Audit Committee	$20,000
Compensation Committee	$15,000
Nominating and Corporate Governance Committee	$10,000
Science and Technology Committee	$24,000

Newly appointed directors received an initial grant of options to purchase 50,000 shares of the Company's common stock, vesting monthly over four years.

Effective June 23, 2017, the compensation plan for non-employee directors was as follows:

Director fees are paid in cash, restricted shares of the Company's common stock or a combination thereof, at the option of the director.

Option 1: Annual cash compensation of $40,000, paid quarterly,

Option 2: Annual cash compensation of $13,333, paid quarterly and $26,667 converted into common stock using the VWAP of the stock for the last five days of the trading month ending each quarter; or

Option 3: No annual cash compensation but $40,000 converted into common stock using the VWAP of the stock for the last five days of the trading month ending each quarter and paid quarterly. This option carries a 15% premium, as there is no cash outlay to the Company. The calculation would be $40,000 X 1.15 = $46,000/VWAP.

In addition to the compensation options above the following compensation apply to non-employee directors chairing a committee of the Board. This compensation will be paid on the same basis as the director chose from the options described above:

Chairman/Lead Director	$25,000
Audit Committee	$20,000
Compensation Committee	$15,000
Nominating and Corporate Governance Committee	$10,000
Science and Technology Committee	$24,000

Stock option grants

Newly appointed/elected directors receive an inducement ('sign-on') option grant to purchase 50,000 shares of the Company's common stock, vesting ratably on a monthly basis over three years, effective as of, with an exercise price equal to the closing price of the Company's common stock on the date the directorship commences.

Annual Option Grants

Each director shall receive annual option grants to purchase 35,000 shares of the Company's common stock, vesting ratably on a monthly basis over twelve months, effective as of, and with an exercise price equal to the closing price of the Company's common stock on the date of the Annual Meeting of Stockholders.

Upon joining the Board, new directors shall be granted a pro-rated annual award (i.e., for portion of year served prior to next shareholder meeting), which shall vest in monthly increments until the next annual meeting.

All options shall include a provision that provides that if such director ceases to be a director, vested options shall lapse (to the extent not exercised) on the earlier of: (i) ten years; or (ii) three years after the date the director ceases to be a director of the Company.

The following table sets forth the director compensation of the non-employee directors of the Company during the year ended December 31, 2018.

Name	Fees Earned Or Paid in Cash ($)(1)	Stock Awards ($)	Option Awards ($)(2)	All Other Compensation ($)	Total ($)
Richard Berman	85,000	—	246,463	—	331,463
Robert Hariri, M.D., Ph.D	64,000	—	246,463	—	310,463
Ramkumar Mandalam, Ph.D.	16,667	33,333	246,463	—	296,463
Edward Zecchini	18,333	36,667	246,463	—	301,463

(1) Fees earned or paid in cash as shown in this schedule represent payments and accruals for directors' services earned during the year ended December 31, 2018.

(2) This column represents the total grant date fair value of all stock options granted during the year ended December 31, 2018. Pursuant to SEC rules, the amounts shown exclude the impact of estimated forfeitures related to service-based vesting conditions. For information on the valuation assumptions with respect to the grants made, refer to Note 2 "*Summary of Significant Accounting Policies"* in the accompanying consolidated financial statements.

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

The following table sets forth information with respect to the beneficial ownership of the Company's common stock as of March 1, 2018, by each person or group of affiliated persons known to the Company to beneficially own 5% or more of its common stock, each director, each named executive officer, and all of its directors and executive officers as a group. As of March 1, 2019, there were 30,436,322 shares of common stock outstanding. Unless otherwise indicated, the address of each beneficial owner listed below is c/o Cryoport, Inc., 17305 Daimler St, Irvine, CA 92614.

The following table gives effect to the shares of common stock issuable within 60 days of March 1, 2019, upon the exercise of all options and other rights beneficially owned by the indicated stockholders on that date. Unless otherwise indicated, the persons named in the table have sole voting and sole investment control with respect to all shares beneficially owned.

Beneficial Owner	Number of Shares of Common Stock Beneficially Owned(2)		Percentage of Shares of Common Stock Beneficially Owned	
Named Executive Officers and Directors:				
Jerrell W. Shelton	2,464,709	(1)	7.6	%
Richard Berman	149,077	(1)(3)	*	
Robert Hariri, M.D. Ph.D.	147,683	(1)	*	
Ramkumar Mandalam Ph.D.	198,350	(1)	*	
Edward Zecchini	214,160	(1)	*	
Daniel Hancock	7,380	(1)	*	
Robert S. Stefanovich	533,595	(1)	1.7	%
All directors and executive officers as a group (7 persons)	3,714,954	(1)	11.0	%
Other Stockholders:				

Alger Associates, Inc.	3,323,798	(4)	10.9	%
Black Rock, Inc.	1,756,166	(5)	5.8	%
Total for all Directors, Executive Officers and Other Stockholders	8,794,918		28.9	%

* Represents less than 1%

(1) Includes shares which individuals shown above have the right to acquire as of March 1, 2018, or within 60 days thereafter, pursuant to outstanding stock options and/or warrants as follows: Mr. Shelton — 2,161,121 shares; Mr. Berman — 140,939 shares; Dr. Hariri — 132,383 shares; Dr. Mandalam—167,832 shares; Mr. Zecchini—177,502, Mr. Hancock—7,380 and Mr. Stefanovich — 532,595 shares.

(2) The number and percentage of shares beneficially owned is determined in accordance with Rule 13d-3 of the Exchange Act, and the information is not necessarily indicative of beneficial ownership for any other purpose. Under such rule, beneficial ownership includes any shares as to which the holder has sole or shared voting power or investment power and also any shares which the holder has the right to acquire within 60 days.

(3) Includes 9,250 warrants and 8,138 shares owned by Mrs. Richard Berman, spouse of Mr. Berman

(4) According to the Schedule 13G filed by Alger Associates, Inc. on February 14, 2019, the shares reported by Alger Associates, Inc. are beneficially owned by Alger Associates, Inc., Fred Alger & Company Incorporated and Fred Alger Management, Inc., which each hold sole power to vote, or to direct the vote of, and sole power to dispose, or to direct the disposition of, these shares. The shares are owned, directly or indirectly, by Alger Associates, Inc., its wholly owned subsidiary Fred Alger & Company Incorporated, or its wholly owned subsidiary Fred Alger Management, Inc. The address for these entities is 360 Park Avenue South, New York, NY 10010.

(5) According to the Schedule 13G filed by Black Rock, Inc. on February 8, 2019, the shares reported by Black Rock, Inc. are beneficially owned by Black Rock, Inc., which holds the sole power to vote or to direct the vote of, and sole power to dispose, or to direct the disposition of, these shares. The shares are owned, directly or indirectly, by Black Rock, Inc., or its wholly owned subsidiaries BlackRock Advisors, LLC, BlackRock Asset Management Canada Limited, BlackRock Fund Advisors, BlackRock Institutional Trust Company, National Association, BlackRock Financial Management, Inc., BlackRock Investment Management, LLC. The address for these entities is 55 East 52nd Street, New York, NY 10055.

Securities Authorized for Issuance Under Equity Compensation Plans

The following table sets forth certain information as of December 31, 2018 concerning the Company’s common stock that may be issued upon the exercise of options or warrants or pursuant to purchases of stock under the Company’s equity compensation plans.

Plan Category	(a) Number of Securities to be Issued Upon the Exercise of Outstanding Options and Warrants	(b) Weighted-Average Exercise Price of Outstanding Options and Warrants	(c) Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a))
Equity compensation plans approved by stockholders	4,661,343	$ 5.19	4,114,654
Equity compensation plans not approved by stockholders(1)	3,145,496	$ 4.38	N/A
Total	7,806,839	$ 4.86	4,114,654

(1) From November 5, 2012 through May 7, 2015, a total of 1,095,962 options outstanding were granted to employees outside of an option plan of which 890,935 shares were issued to Mr. Shelton and 127,402 shares were issued to Mr. Stefanovich.

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

None

Item 14. Principal Accountant Fees and Services

***Independent Registered Public Accounting Firms* Fees**

The following table shows the fees that were billed to us for the audit and other services provided by KMJ Corbin & Company LLP ("KMJ") for the Company's years ended December 31, 2018 and 2017.

	Year Ended December 31, 2018	Year Ended December 31, 2017
Audit Fees	$ 113,625	$ 85,500
Audit-Related Fees	96,953	46,935
Tax Fees	16,457	15,050
	$ 227,035	$ 147,485

The fees billed to us by KMJ during or related to the years ended December 31, 2018 and 2017 consist of audit fees, audit-related fees and tax fees, as follows:

Audit Fees. Represents the aggregate fees billed to us for professional services rendered for the audit of our annual consolidated financial statements and for the reviews of our consolidated financial statements included in our Form 10-Q filings for each fiscal quarter.

Audit-Related Fees. Represents the aggregate fees billed to us for assurance and related services that are reasonably related to the performance of the audit and review of our consolidated financial statements that are not already reported in Audit Fees. These services include accounting consultations and attestation services that are not required by statute such as comfort letters, S-1 and S-8 filings.

Tax Fees. Represents the aggregate fees billed to us for professional services rendered for tax returns, compliance and tax advice.

All Other Fees. We did not incur any other fees to KMJ during the years ended December 31, 2018 and 2017.

Policy on Audit Committee Pre-Approval of Fees

The Audit Committee must pre-approve all services to be performed for us by our independent auditors. Pre-approval is granted usually at regularly scheduled meetings of the Audit Committee. If unanticipated items arise between regularly scheduled meetings of the Audit Committee, the Audit Committee has delegated authority to the chairman of the Audit Committee to pre-approve services, in which case the chairman communicates such pre-approval to the full Audit Committee at its next meeting. The Audit Committee also may approve the additional unanticipated services by either convening a special meeting or acting by unanimous written consent. During the years ended December 31, 2018 and 2017, all services billed by KMJ were pre-approved by the Audit Committee in accordance with this policy.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a)(1) *Consolidated Financial Statements:*

	Page
Reports of Independent Registered Public Accounting Firm	F-2
Consolidated Balance Sheets as of December 31, 2018 and 2017	F-4
Consolidated Statements of Operations for the years ended December 31, 2018 and 2017	F-5
Consolidated Statements of Comprehensive Loss for the years ended December 31, 2018 and 2017	F-6
Consolidated Statements of Stockholders' Equity for the years ended December 31, 2018 and 2017	F-7
Consolidated Statements of Cash Flows for the years ended December 31, 2018 and 2017	F-8
Notes to Consolidated Financial Statements	F-9

(a)(2) *Financial Statement Schedules:* All financial statement schedules are omitted because they are not applicable or the required information is included in the Consolidated Financial Statements or notes thereto.

(a)(3) *Exhibits.* See Index to Exhibits at page E-1 of this Annual Report on Form 10-K.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized.

Cryoport, Inc.

By: /s/ JERRELL W. SHELTON
Jerrell W. Shelton
Chief Executive Officer and Director

Date: March 13, 2019

Pursuant to the requirements of the Securities Exchange Act of 1934, this Annual Report on Form 10-K has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated:

Signature	**Title**	**Date**
/s/ JERRELL W. SHELTON Jerrell W. Shelton	Chief Executive Officer and Director (Principal Executive Officer)	March 13, 2019
/s/ ROBERT S. STEFANOVICH Robert S. Stefanovich	Chief Financial Officer (Principal Financial and Accounting Officer)	March 13, 2019
/s/ RICHARD BERMAN Richard Berman	Director	March 13, 2019
/s/ DANIEL M. HANCOCK Daniel M. Hancock	Director	March 13, 2019
/s/ ROBERT HARIRI, M.D., PH.D. Robert Hariri, M.D., Ph.D.	Director	March 13, 2019
/s/ RAMKUMAR MANDALAM, PH.D. Ramkumar Mandalam Ph.D.	Director	March 13, 2019
/s/ EDWARD ZECCHINI Edward Zecchini	Director	March 13, 2019

Cryoport, Inc. and Subsidiaries

Consolidated Financial Statements

As of December 31, 2018 and 2017

Years Ended December 31, 2018 and 2017

Cryoport, Inc. and Subsidiaries

Consolidated Financial Statements

INDEX TO FINANCIAL STATEMENTS

	Page
Reports of Independent Registered Public Accounting Firm	F-2
Consolidated Balance Sheets as of December 31, 2018 and 2017	F-4
Consolidated Statements of Operations for the years ended December 31, 2018 and 2017	F-5
Consolidated Statements of Comprehensive Loss for the years ended December 31, 2018 and 2017	F-6
Consolidated Statements of Stockholders' Equity for the years ended December 31, 2018 and 2017	F-7
Consolidated Statements of Cash Flows for the years ended December 31, 2018 and 2017	F-8
Notes to Consolidated Financial Statements	F-9

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors of Cryoport, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Cryoport, Inc. and subsidiaries (the "Company") as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for the years then ended, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control-Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated March 13, 2019 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures include examining, on a test basis, evidence regarding the

amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ KMJ Corbin & Company LLP

Costa Mesa, California

March 13, 2019

We have served as the Company’s auditor since 2005.

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors of Cryoport, Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Cryoport, Inc. and subsidiaries (the "Company") as of December 31, 2018, based on criteria established in *Internal Control-Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements of the Company as of and for the year ended December 31, 2018, and our report dated March 13, 2019 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting included in Item 9A. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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 effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A 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. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) 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 management and directors of the company; and (3) 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 the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KMJ Corbin & Company LLP

Costa Mesa, California

March 13, 2019

Cryoport, Inc. and Subsidiaries

Consolidated Balance Sheets

	December 31,	
	2018	**2017**
ASSETS		
Current Assets:		
Cash and cash equivalents	$37,327,125	$15,042,189
Short-term investments	9,930,968	—
Accounts receivable, net of allowance for doubtful accounts of $100,000 and $70,000, respectively	3,543,666	1,625,476
Inventories	220,514	114,796
Prepaid expenses and other current assets	752,269	516,427
Total current assets	51,774,542	17,298,888
Property and equipment, net	4,357,498	2,511,174
Intangible assets, net	137,220	90,646
Deposits	350,837	363,403
Total assets	$56,620,097	$20,264,111
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current Liabilities:		
Accounts payable and other accrued expenses	$1,709,397	$1,203,354
Accrued compensation and related expenses	1,262,478	925,514
Deferred revenue	66,315	73,444
Capital lease obligations	23,191	—
Total current liabilities	3,061,381	2,202,312
Convertible note, net of discount of $288,400	14,711,580	—
Deferred rent liability, net of current portion	267,415	175,033
Capital lease obligations, net of current portion	33,156	—
Total liabilities	18,073,532	2,377,345
Commitments and contingencies		
Stockholders' Equity:		
Preferred stock, $0.001 par value; 2,500,000 shares authorized:		
Class A convertible preferred stock, $0.001 par value; 800,000 shares authorized; none issued and outstanding	—	—
Class B convertible preferred stock, $0.001 par value; 585,000 shares authorized; none issued and outstanding	—	—
Common stock, $0.001 par value; 100,000,000 shares authorized; 30,319,038 and 25,701,924 issued and outstanding at December 31, 2018 and 2017, respectively	30,319	25,702
Additional paid-in capital	179,501,577	149,293,947
Accumulated deficit	(140,988,484)	(131,432,883)
Accumulated other comprehensive income	3,153	—

Total stockholders’ equity	38,546,565	17,886,766
Total liabilities and stockholders’ equity	$56,620,097	$20,264,111

See accompanying notes to consolidated financial statements.

Cryoport, Inc. and Subsidiaries

Consolidated Statements of Operations

	Years Ended December 31, 2018	2017
Revenues	$19,626,453	$11,954,267
Cost of revenues	9,386,188	5,987,834
Gross margin	10,240,265	5,966,433
Operating costs and expenses:		
General and administrative	9,798,793	7,420,837
Sales and marketing	7,245,644	5,232,406
Engineering and development	1,840,443	1,205,692
Total operating costs and expenses	18,884,880	13,858,935
Loss from operations	(8,644,615)	(7,892,502)
Other income (expense):		
Interest expense	(69,253)	(15,693)
Warrant inducement and repricing expense	(899,410)	—
Other income, net	77,631	14,337
Total other expense, net	(891,032)	(1,356)
Loss before provision for income taxes	(9,535,647)	(7,893,858)
Provision for income taxes	(19,954)	(5,143)
Net loss	$(9,555,601)	$(7,899,001)
Net loss per share – basic and diluted	$(0.34)	$(0.34)
Weighted average common shares outstanding – basic and diluted	28,210,648	22,963,382

See accompanying notes to consolidated financial statements.

Cryoport, Inc. and Subsidiaries

Consolidated Statements of Comprehensive Loss

	Years Ended December 31,	
	2018	2017
Net loss	$(9,555,601)	$(7,899,001)
Other comprehensive income, net of tax:		
Net unrealized gain on available-for-sale debt securities	23,582	—
Foreign currency translation adjustments	(20,429)	—
Other comprehensive income	3,153	—
Total comprehensive loss	$(9,552,448)	$(7,899,001)

Cryoport, Inc. and Subsidiaries

Consolidated Statements of Stockholders' Equity

	Class A Preferred Stock		Class B Preferred Stock		Common Stock		**Additional Paid–In Capital**	Accumulated Deficit	Accumulated Other Comprehensive Income	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount	Shares	Amount				
Balance at December 31, 2016	—	$ —	—	$ —	17,604,283	$17,604	$129,196,680	$(123,533,882)	$ —	$5,680,402
Net loss	—	—	—	—	—	—	—	(7,899,001)		(7,899,001)
Stock-based compensation expense	—	—	—	—	—	—	3,477,781	—	—	3,477,781
Issuance of common stock for board of director compensation	—	—	—	—	15,872	16	69,984	—	—	70,000
Proceeds from common stock offering, net of costs of $170,326	—	—	—	—	6,325,000	6,325	11,399,599	—	—	11,405,924
Proceeds from exercise of stock options and warrants	—	—	—	—	1,756,769	1,757	5,149,903	—	—	5,151,660
Balance at December 31, 2017	—	—	—	—	25,701,924	25,702	149,293,947	(131,432,883)	—	17,886,766
Net loss	—	—	—	—	—	—	—	(9,555,601)	—	(9,555,601)
Other comprehensive income, net of taxes	—	—	—	—	—	—	—	—	3,153	3,153
Stock-based compensation expense	—	—	—	—	—	—	5,408,625	—	—	5,408,625
Warrant repricing expense	—	—	—	—	—	—	899,410	—	—	899,410
	—	—	—	—	1,580,388	1,580	4,640,227	—	—	4,641,807

Proceeds from tender offer, net of costs of $99,357										
Proceeds from ATM, net of costs of $44,202	—	—	—	—	248,839	248	3,362,908	—	—	3,363,156
Issuance of common stock, net of costs of $191,670	—	—	—	—	1,000,000	1,000	9,807,330	—	—	9,808,330
Issuance of common stock for board of director compensation	—	—	—	—	6,228	6	69,994	—	—	70,000
Proceeds from exercise of stock options and warrants	—	—	—	—	1,781,659	1,783	6,019,136	—	—	6,020,919
Balance at December 31, 2018	—	$ —	—	$ —	30,319,038	$ 30,319	$ 179,501,577	$ (140,988,484)	$ 3,153	$ 38,546,565

See accompanying notes to consolidated financial statements.

F-7

Cryoport, Inc. and Subsidiaries

Consolidated Statements of Cash Flows

	Years Ended December 31,	
	2018	2017
Cash Flows From Operating Activities:		
Net loss	$(9,555,601)	$(7,899,001)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	857,939	664,831
Amortization of debt discount and deferred financing costs	—	6,130
Unrealized loss on short-term equity securities	16,233	—
Stock-based compensation expense to employees, directors and consultants	5,478,625	3,547,781
Warrant inducement and repricing expense	899,410	—
Loss on disposal of property and equipment	397,467	186,030
Provision for bad debt	40,215	11,646
Changes in operating assets and liabilities:		
Accounts receivable	(1,958,405)	(441,643)
Inventories	(105,718)	(25,297)
Prepaid expenses and other current assets	(235,825)	(261,489)
Deposits	12,576	—
Accounts payable and other accrued expenses	405,074	123,249
Accrued compensation and related expenses	336,736	506,480
Deferred revenue	(7,129)	—
Accrued interest	66,023	(1,843)
Net cash used in operating activities	(3,352,380)	(3,583,126)
Cash Flows From Investing Activities:		
Purchases of property and equipment	(2,914,029)	(1,714,931)
Purchases of short-term investments	(9,923,619)	—
Patent and trademark costs	(46,574)	(85,646)
Net cash used in investing activities	(12,884,222)	(1,800,577)
Cash Flows From Financing Activities:		
Proceeds from exercise of stock options and warrants	6,020,919	5,151,660
Proceeds from issuance of convertible debt	15,000,000	—
Proceeds from issuance of common stock, net of costs	9,808,330	—
Proceeds from February 2018 tender offer, net of offering costs	4,641,807	—
Proceeds from the ATM, net of offering costs	3,363,156	—
Payment of deferred financing costs	(288,420)	—
Repayment of capital lease obligation	(14,700)	—

Proceeds from public offering, net of offering costs	—	11,405,924
Repayment of related-party notes payable	—	(656,221)
Net cash provided by financing activities	38,531,092	15,901,363
Effect of exchange rate changes on cash and cash equivalents	(9,554)	—
Net change in cash and cash equivalents	22,284,936	10,517,660
Cash and cash equivalents — beginning of year	15,042,189	4,524,529
Cash and cash equivalents — end of year	$37,327,125	$15,042,189
Supplemental Disclosure of Cash Flow Information:		
Cash paid for interest	$637	$4,744
Cash paid for income taxes	$19,954	$5,143
Supplemental Disclosure of Non-Cash Investing and Financing Activities:		
Net unrealized gain on available-for-sale debt securities	$23,582	$—
Leasehold improvements paid by tenant allowance	$127,316	$—
Purchase of equipment through capital lease obligations	$71,047	$—
Deferred offering costs in connection with future warrant repricing included in accounts payable and prepaid expenses and other current assets	$—	$31,981

See accompanying notes to consolidated financial statements.

Cryoport, Inc. and Subsidiaries

Notes to Consolidated Financial Statements

Note 1. Nature of the Business

Cryoport, Inc. (“Cryoport”) is the premier provider of temperature controlled logistics solutions to the life sciences industry through its purpose-built proprietary packaging, information technology and specialized cold chain logistics expertise. The Company provides leading edge logistics solutions to the biopharma, reproductive medicine and animal health markets to ship, store and deliver biologic materials, such as immunotherapies, stem cells, CAR-T cell therapies, vaccines and reproductive cells for clients worldwide Cryoport actively supports pharmaceutical and biotechnology companies, points-of-care, contract research organizations, central laboratories, contract manufacturers, university researchers and other entities service the life sciences industry.

The Company is a Nevada corporation and its common stock is traded on the NASDAQ Capital Market exchange under the ticker symbol “CYRX.”

Note 2. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (“U.S. GAAP”).

Principles of Consolidation

The accompanying consolidated financial statements include the accounts of Cryoport, Inc. and its wholly owned subsidiaries, Cryoport Systems, Inc., Cryoport Netherlands B.V. and Cryoport UK Limited (collectively, the “Company”). All intercompany accounts and transactions have been eliminated.

Cash and Cash Equivalents

Our cash and cash equivalents represent demand deposits, and money market funds which are readily convertible into cash, have maturities of 90 days or less when purchased and are considered highly liquid and easily tradeable.

Short-Term Investments

Our investments in equity securities consist of mutual funds with readily determinable fair values which are carried at fair value with changes in fair value recognized in earnings.

Investments in debt securities are classified as available-for-sale and are carried at fair value, with unrealized gains and losses, net of tax, reported as accumulated other comprehensive income (loss) and included as a separate component of stockholders' equity.

Gains and losses are recognized when realized. When we have determined that an other than temporary decline in fair value has occurred, the amount related to a credit loss is recognized in earnings. Gains and losses are determined using the specific identification method.

Short-term investments are classified as current assets even though maturities may extend beyond one year because they represent investments of cash available for operations.

Use of Estimates

The preparation of the consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting periods. Actual results could differ from estimated amounts. The Company's significant estimates include the allowance for doubtful accounts, fair value of short-term investments, recoverability of long-lived assets, allowance for inventory obsolescence, deferred taxes and their accompanying valuations, and valuation of equity instruments.

Fair Value of Financial Instruments

The Company's financial instruments consist of cash and cash equivalents, short-term investments, accounts receivable, accounts payable and accrued expenses, capital lease obligations and the convertible note. The carrying value for all such instruments, except capital lease obligations and the convertible note, approximates fair value at December 31, 2018 and 2017 due to their short-term nature. The carrying value of capital lease obligations approximates fair value because the interest rate approximates market rates available to us for similar obligations with the same maturities. The convertible note bears an interest rate that fluctuates with the changes in LIBOR and, because the variable interest rates approximate market borrowing rates available to us, we believe the $14.7 million carrying value of the convertible note approximates its fair value at December 31, 2018.

Concentrations of Credit Risk

Financial instruments that potentially subject us to concentrations of credit risk consist primarily of cash, cash equivalents and short-term investments. From time to time, we maintain cash, cash equivalent and short-term investment balances in excess of amounts insured by the Federal Deposit Insurance Corporation ("FDIC") and the Securities Investor Protection Corporation ("SIPC"). Primarily all of our cash, cash equivalents and short-term investments at December 31, 2018 were in excess of amounts insured by the FDIC and SIPC. The Company performs ongoing evaluations of these institutions to limit its concentration risk exposure. We manage such risks in our portfolio by investing in highly liquid, highly-rated instruments, and limit investing in long-term maturity instruments.

Our investment policy requires that purchased instruments in marketable securities may only be in highly-rated instruments, which are primarily U.S. Treasury bills or treasury-backed securities, and also limits our investment in securities of any single issuer.

Customers

The Company grants credit to customers within the U.S. and to a limited number of international customers and does not require collateral. Revenues from international customers are generally secured by advance payments except for a limited number of established foreign customers. The Company generally requires advance or credit card payments for initial revenues from new customers. The Company's ability to collect receivables is affected by economic fluctuations in the geographic areas and industries served by the Company. Reserves for uncollectible amounts are provided based on past experience and a specific analysis of the accounts, which management believes is sufficient. Accounts receivable at December 31, 2018, and 2017 are net of reserves for doubtful accounts of $100,000 and $70,000, respectively. Although the Company expects to collect amounts due, actual collections may differ from the

estimated amounts. The Company maintains reserves for bad debt and such losses, in the aggregate, historically have not exceeded its estimates.

The Company's customers are in the biotechnology, pharmaceutical, animal health, reproductive medicine and other life science industries. Consequently, there is a concentration of accounts receivable within these industries, which is subject to normal credit risk. As of December 31, 2018, there were two customers that accounted for 29.0% and 23.4%, respectively, of net accounts receivable. There was no other single customer that owed us more than 10% of net accounts receivable at December 31, 2018 and 2017.

The Company has revenue from foreign customers primarily in Europe, Japan, Canada, India and Australia. During the years ended December 31, 2018 and 2017, the Company had revenues from foreign customers of approximately $1.7 million and $1.3 million, respectively, which constituted approximately 9.0% and 11.1%, respectively, of total revenues. There was one customer that accounted for 18.2% of revenues during the year ended December 31, 2018. No other single customer generated over 10% of revenues during the years ended December 31, 2018 and 2017.

Inventories

The Company's inventories consist of packaging materials and accessories that are sold to customers. Inventories are stated at the lower of cost and net realizable value. Cost is determined using the standard cost method which approximates the first-in, first-to-expire method. Inventories are reviewed periodically for slow-moving or obsolete status. The Company writes down the carrying value of its inventories to reflect situations in which the cost of inventories is not expected to be recovered. Once established, write-downs of inventories are considered permanent adjustments to the cost basis of the obsolete or excess inventories. Raw materials and finished goods include material costs less reserves for obsolete or excess inventories. The Company evaluates the current level of inventories considering historical trends and other factors, such as selling prices and costs of completion, disposal and transportation, and based on the evaluation, records adjustments to reflect inventories at net realizable value. These adjustments are estimates, which could vary significantly from actual results if future economic conditions, customer demand, competition or other relevant factors differ from expectations. These estimates require us to make assessments about future demand for the Company's products in order to categorize the status of such inventories items as slow-moving, obsolete or in excess-of-need. These estimates are subject to the ongoing accuracy of the Company's forecasts of market conditions, industry trends, competition and other factors.

Property and Equipment

The Company provides shipping containers ("Shippers") to its customers and charges a fee in exchange for the use of the Shipper. The Company's arrangements are similar to the accounting standard for leases since they convey the right to use the Shipper over a period of time. The Company retains the title to the Shippers and provides its customers the use of the Shipper for a specific shipping cycle. At the culmination of the customer's shipping cycle, the Shipper is returned to the Company. As a result, the Company classifies the Shippers as property and equipment for the per-use Shipper program.

Property and equipment are recorded at cost. Shippers and data loggers, which comprise 34% and 47% of the Company's net property and equipment balance at December 31, 2018 and 2017, respectively, are depreciated using the straight-line method over their estimated useful lives of three years. Equipment and furniture are depreciated using the straight-line method over their estimated useful lives (generally three to seven years) and leasehold improvements are amortized using the straight-line method over the estimated useful life of the asset or the lease term, whichever is shorter.

Betterments, renewals and extraordinary repairs that extend the lives of the assets are capitalized; other repairs and maintenance charges are expensed as incurred. The cost and related accumulated depreciation and amortization applicable to assets retired are removed from the accounts, and the gain or loss on disposition is recognized in the consolidated statements of operations.

Capitalized Software

Capitalized software, which is included in property and equipment, net, consists of costs to develop internal use software, which the Company uses to provide various services to customers. The costs are capitalized from the time that the preliminary project stage is completed and considered probable that the software will be used to perform the function intended, until the time the software is placed in service for its intended use. Once this software is ready for use, these costs are amortized on a straight-line basis over the estimated useful life of the software, which is generally 7 years. Capitalized software is reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. If an impairment indicator is present, a recoverability analysis is performed based on estimated undiscounted cash flows to be generated form the software in the future. If the analysis indicates that the carrying value is not recoverable from future cash flows, the software cost is written down to the estimated fair value and an impairment is recognized. These estimates are subject to revision as market conditions and the Company's assessments change.

Intangible Assets

Intangible assets are comprised of patents and trademarks. The Company capitalizes costs of obtaining patents and trademarks, which are amortized, using the straight-line method over their estimated useful life of five years once the patent or trademark has been issued.

Long-lived Assets

If indicators of impairment exist, we assess the recoverability of the affected long-lived assets by determining whether the carrying value of such assets can be recovered through undiscounted future operating cash flows. If impairment is indicated, we measure the amount of such impairment by comparing the fair value to the carrying value. We believe the future cash flows to be received from the long-lived assets will exceed the assets' carrying value, and accordingly, we have not recognized any impairment losses through December 31, 2018.

Deferred Financing Costs

Deferred financing costs represent costs incurred in connection with the issuance of debt instruments and equity financings. Deferred financing costs related to the issuance of debt are amortized over the term of the financing instrument using the effective interest method, and are presented in the consolidated balance sheets as an offset against the related debt. Offering costs from equity financings are netted against the gross proceeds received from the equity financings.

Income Taxes

The Company accounts for income taxes under the provision of the Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") 740, "*Income Taxes*", or ASC 740. As of December 31, 2018 and 2017, there were no unrecognized tax benefits included in the accompanying consolidated balance sheets that would, if recognized, affect the effective tax rate.

Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. A valuation allowance is provided for certain deferred tax assets if it is more likely than not that the Company will not realize tax assets through future operations. Based on the weight of available evidence, the Company's management has determined that it is more likely than not that the net deferred tax assets will not be realized. Therefore, the Company has recorded a full valuation allowance against the net deferred tax assets. The Company's provision for income taxes consists of state minimum taxes.

The Company's policy is to recognize interest and/or penalties related to income tax matters in income tax expense. The Company had no accrual for interest or penalties on its consolidated balance sheets at December 31, 2018 and 2017, and has not recognized interest and/or penalties in the consolidated statements of operations for the years ended December 31, 2018 and 2017. The Company is subject to taxation in the U.S., various state jurisdictions, and in the Netherlands. As of December 31, 2018, the Company is no longer subject to U.S. federal examinations for years before 2015 and for California franchise and income tax examinations for years before 2014. However, to the extent allowed by law, the taxing authorities may have the right to examine prior periods where net operating losses were generated and carried forward, and make adjustments up to the amount of the net operating loss carry forward amount. The Company is not currently under examination by U.S. federal or state jurisdictions.

Revenue Recognition

See Note 13.

Engineering and Development Expenses

Expenditures relating to engineering and development are expensed in the period incurred.

Stock-Based Compensation

The Company accounts for stock-based payments to employees and directors in accordance with stock-based payment accounting guidance which requires all stock-based payments to employees and directors, including grants of employee stock options and warrants, to be recognized based upon their fair values. The fair value of stock-based awards is estimated at the grant date using the Black-Scholes Option Pricing Model ("Black-Scholes") and the portion

that is ultimately expected to vest is recognized as compensation cost over the requisite service period. The determination of fair value using Black-Scholes is affected by the Company's stock price as well as assumptions regarding a number of complex and subjective variables, including expected stock price volatility, risk-free interest rate, expected dividends and projected employee stock option exercise behaviors. The Company accounts for forfeitures of unvested awards as they occur.

The Company's stock-based compensation plans are discussed further in Note 12.

Equity Instruments Issued to Non-Employees for Acquiring Goods or Services

Issuances of the Company's common stock for acquiring goods or services are measured at the estimated fair value of the consideration received or the estimated fair value of the equity instruments issued, whichever is more reliably measurable. The measurement date for the estimated fair value of the equity instruments issued to consultants or vendors is determined at the earlier of (i) the date at which a commitment for performance to earn the equity instruments is reached (a "performance commitment" which would include a penalty considered to be of a magnitude that is a sufficiently large disincentive for nonperformance) or (ii) the date at which performance is complete. When it is appropriate for the Company to recognize the cost of a transaction during financial reporting periods prior to the measurement date, for purposes of recognition of costs during those periods, the equity instrument is measured at the then-current estimated fair values at each of those interim financial reporting dates.

Basic and Diluted Net Income (Loss) Per Share

We calculate basic and diluted net income (loss) per share using the weighted average number of common shares outstanding during the periods presented, and adjust the amount of net income (loss) used in this calculation for deemed dividends and cumulative preferred stock dividends (if any), whether they are earned or not during the period. In periods of a net loss position, basic and diluted weighted average common shares are the same. For the diluted earnings per share calculation, we adjust the weighted average number of common shares outstanding to include dilutive stock options, warrants and shares associated with the conversion of convertible debt and convertible preferred stock outstanding during the periods.

The following shows the amounts used in computing net loss per share for the years ended December 31, 2018 and 2017:

	Years Ended December 31,	
	2018	2017
Net loss	$(9,555,601)	$(7,899,001)
Weighted average common shares outstanding – basic and diluted	28,210,648	22,963,382
Basic and diluted net loss per share	$(0.34)	$(0.34)

The following table sets forth the number of shares excluded from the computation of diluted loss per share, as their inclusion would have been anti-dilutive:

	Years Ended December 31,	
	2018	2017
Stock Options	3,130,635	4,582,383
Warrants	1,329,594	4,579,699
Convertible Note	1,372,998	—
	5,833,227	9,162,082

Segment Reporting

We currently operate in one reportable segment and the chief operating decision maker is our Chief Executive Officer.

Foreign Currency Transactions

Management has determined that the functional currency of its subsidiaries is the local currency. Assets and liabilities of the Netherlands and UK subsidiaries are translated into U.S. dollars at the period-end exchange rates. Income and expenses are translated at an average exchange rate for the period and the resulting translation gain (loss) adjustments are accumulated as a separate component of stockholders' equity. The translation gain (loss) adjustment totaled $(20,400) for the year ended December 31, 2018.

Comprehensive Income (Loss)

Comprehensive income includes all changes in equity (net assets) during a period from non-owner sources. For the year ended December 31, 2018, the components of comprehensive income (loss) consist of unrealized gains on available-for-sale debt securities and foreign currency translation losses. For the year ended December 31, 2017, net loss equaled comprehensive loss as there were no items of comprehensive loss.

Off Balance Sheet Arrangements

We do not currently have any off balance sheet arrangements.

Reclassifications

Certain prior year amounts have been reclassified in the consolidated balance sheets to conform to the current year presentation.

Recent Accounting Pronouncements

In June 2018, the FASB issued ASU 2018-07, "Compensation – Stock Compensation: Improvements to Nonemployee Share-Based Payment Accounting" which simplifies several aspects of the accounting for nonemployee share-based payment transactions resulting from expanding the scope of Topic 718, "Compensation-Stock Compensation", to include share-based payment transactions for acquiring goods and services from nonemployees. Some of the areas for simplification apply only to nonpublic entities. The amendments specify that Topic 718 applies to all share-based payment transactions in which a grantor acquires goods or services to be used or consumed in a grantor's own operations by issuing share-based payment awards. The amendments also clarify that Topic 718 does not apply to share-based payments used to effectively provide (1) financing to the issuer or (2) awards granted in conjunction with selling goods or services to customers as part of a contract accounted for under Topic 606, "Revenue from Contracts with Customers". which simplifies the accounting for share-based payments granted to nonemployees for goods and services. The new standard is effective for fiscal years beginning after December 15, 2018, including interim periods therein with a modified retrospective transition. Management is currently evaluating the impact this standard will have on its consolidated financial statements.

In July 2017, the FASB issued a two-part ASU 2017-11, "(Part I) Accounting for Certain Financial Instruments with Down Round Features, (Part II) Replacement of the Indefinite Deferral for Mandatorily Redeemable Financial Instruments of Certain Nonpublic Entities and Certain Mandatorily Redeemable Non-controlling Interests with a Scope Exception." The ASU will (1) "change the classification analysis of certain equity-linked financial instruments (or embedded features) with down round features" and (2) improve the readability of ASC 480-10 by replacing the indefinite deferral of certain pending content with scope exceptions. The amendments in Part I of this Update change the classification analysis of certain equity-linked financial instruments (or embedded features) with down round features. When determining whether certain financial instruments should be classified as liabilities or equity instruments, a down round feature no longer precludes equity classification when assessing whether the instrument is indexed to an entity's own stock. The amendments also clarify existing disclosure requirements for equity-classified instruments. As a result, a freestanding equity-linked financial instrument (or embedded conversion option) no longer would be accounted for as a derivative liability at fair value as a result of the existence of a down round feature. For freestanding equity classified financial instruments, the amendments require entities that present earnings per share ("EPS") in accordance with Topic 260 to recognize the effect of the down round feature when it is triggered. That effect is treated as a dividend and as a reduction of income available to common shareholders in basic EPS. Convertible instruments with embedded conversion options that have down round features are now subject to the specialized guidance for contingent beneficial conversion features (in Subtopic 470-20 "Debt-Debt with Conversion and Other Options"), including related EPS guidance (in Topic 260). The amendments in Part II of this Update recharacterize the indefinite deferral of certain provisions of Topic 480 that are now pending content in this Codification to a scope exception. Those amendments do not have an accounting effect. This new accounting guidance is effective for public companies for fiscal years beginning after December 15, 2018; however, early adoption is permitted. The Company early adopted the guidance in ASU 2017-11 effective October 1, 2018.

In February 2016, the FASB issued ASU 2016-02, "Leases", which provides for a comprehensive change to lease accounting. The new standard requires that a lessee recognize a lease obligation liability and a right-to-use asset for virtually all leases of property, plant and equipment, subsequently amortized over the lease term. The new standard is effective for fiscal years beginning after December 15, 2018, with a modified retrospective transition. Management is currently evaluating the impact this standard will have on its consolidated financial statements.

In January 2016, the FASB issued ASU No. 2016-01, "Financial Instruments — Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities". ASU 2016-01 provides guidance related to accounting for equity investments, financial liabilities under the fair value option and the presentation and disclosure requirements for financial instruments. Marketable equity securities previously classified as available-for-sale equity investments are now measured and recorded at fair value with changes in fair value recorded within other expense, net in the Consolidated Statements of Operations rather than as a component of other comprehensive income as in prior years. In addition, the FASB clarified guidance related to the valuation allowance assessment when recognizing deferred tax assets resulting from unrealized losses on available-for-sale debt securities. The Company adopted this standard effective January 1, 2018. The adoption of this standard did not have a material impact on the Company's consolidated financial statements.

In May 2014, the FASB issued Accounting Standards Update ASU 2014-09, “Revenue from Contracts with Customers (Topic 606),” which supersedes nearly all existing revenue recognition guidance, including industry-specific guidance. Subsequent to the issuance of ASU No. 2014-09, the FASB clarified the guidance through several Accounting Standards Updates; hereinafter the collection of revenue guidance is referred to as “Topic 606.” Topic 606 is based on the principle that an entity should recognize revenue to depict the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. Topic 606 also requires additional disclosures about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments and changes in judgments and assets recognized from costs incurred to fulfill a contract. The Company adopted Topic 606 on January 1, 2018 using the modified retrospective transition method; accordingly, Topic 606 has been applied to the fiscal 2018 financial statements and disclosures going forward, but the comparative information has not been restated and continues to be reported under the accounting standards in effect for those periods. Management expects the impact of the adoption of Topic 606 to be immaterial to the Company’s operating results on an ongoing basis. See Note 13, “Revenue Recognition,” for additional details on this implementation and the required disclosures.

Note 3. Cash, Cash Equivalents and Short-Term Investments

Cash, cash equivalents and short-term investments consisted of the following as of December 31, 2018:

	Carrying Value
Cash	$37,223,698
Cash equivalents:	
Money market mutual fund	103,427
Total cash and cash equivalents	37,327,125
Short-term investments:	
U.S. Treasury notes and bills	7,925,975
Mutual funds	2,004,993
Total short-term investments	9,930,968
Cash, cash equivalents and short-term investments	$47,258,093

Available-for-sale investments

The amortized cost, gross unrealized gains, gross unrealized losses and fair value of available-for-sale investments by type of security at December 31, 2018 were as follows:

	Amortized Cost	**Unrealized Gains**	**Unrealized Losses**	Fair Value
U.S. Treasury bills	$2,948,777	$ 19,523	$ —	$2,968,300
U.S. Treasury notes	4,953,616	4,059	—	4,957,675
Total available-for-sale investments	$7,902,393	$ 23,582	$ —	$7,925,975

The following table summarizes the fair value of available-for-sale investments based on stated contractual maturities as of December 31, 2018:

	Amortized Cost	Fair Value
Due within one year	$ 5,913,327	$5,936,515
Due between one and two years	1,989,066	1,989,460

Total	$ 7,902,393	$7,925,975

As of December 31, 2018, there were no available-for-sale investments in an unrealized loss position.

The primary objective of our investment portfolio is to enhance overall returns in an efficient manner while maintaining safety of principal, prudent levels of liquidity and acceptable levels of risk. Our investment policy limits interest-bearing security investments to certain types of debt and money market instruments issued by institutions with primarily investment-grade credit ratings, and it places restrictions on maturities and concentration by asset class and issuer.

We review our available-for-sale investments for other-than-temporary declines in fair value below our cost basis each quarter and whenever events or changes in circumstances indicate that the cost basis of an asset may not be recoverable. The evaluation is based on a number of factors, including the length of time and the extent to which the fair value has been below our cost basis, as well as adverse conditions related specifically to the security such as any changes to the credit rating of the security and the intent to sell or whether we will more likely than not be required to sell the security before recovery of its amortized cost basis. Our assessment of whether a security is other-than-temporarily impaired could change in the future based on new developments or changes in assumptions related to that particular security.

During the year ended December 31, 2018, we had no realized gains or losses on available-for-sale investments.

Equity Investments

We held investments in equity securities with readily determinable fair values of $2.0 million at December 31, 2018. These investments consist of mutual funds that invest primarily in tax free municipal bonds and treasury inflation protected securities.

Unrealized gains (losses) during 2018 related to equity securities held at December 31, 2018 are as follows:

Net gains (losses) recognized during the year on equity securities	$(16,233)
Less: net gains (losses) recognized during the year on equity securities sold during the year	—
Unrealized gains (losses) recognized during the year on equity securities still held at December 31, 2018	$(16,233)

Note 4. Fair Value Measurements

We measure fair value based on the prices that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Fair value measurements are based on a three-tier hierarchy that prioritizes the inputs used to measure fair value. These tiers include the following:

Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities that are accessible at the measurement date. The fair value hierarchy gives the highest priority to Level 1 inputs.

Level 2: Observable prices that are based on inputs not quoted on active markets, but corroborated by market data. These inputs include quoted prices for similar assets or liabilities; quoted market prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3: Unobservable inputs are used when little or no market data is available. The fair value hierarchy gives the lowest priority to Level 3 inputs.

In determining fair value, we utilize valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible, as well as consider counterparty credit risk in the assessment of fair value.

We did not elect the fair value option, as allowed, to account for financial assets and liabilities that were not previously carried at fair value. Therefore, material financial assets and liabilities that are not carried at fair value, such as trade accounts receivable and payable, are reported at their historical carrying values.

The carrying values of our assets that are required to be measured at fair value on a recurring basis as of December 31, 2018 approximate fair value because of our ability to immediately convert these instruments into cash with minimal expected change in value which are classified in the table below in one of the three categories of the fair value hierarchy described above:

	Fair Value Measurements			
	Level 1	Level 2	Level 3	Total
December 31, 2018				
Cash equivalents:				
Money market mutual fund	$103,427	$ —	$ —	$103,427
Marketable equity securities:				
Mutual funds	2,004,993	—	—	2,004,993
Available-for-sale debt securities:				
U.S. Treasury notes	4,957,675	—	—	4,957,675
U.S. Treasury bills	2,968,300	—	—	2,968,300
	$10,034,395	$ —	$ —	$10,034,395

Our equity securities and available-for-sale debt securities, including U.S. treasury notes and U.S. treasury bills, are valued using inputs observable in active markets for identical securities and are therefore classified as Level I within the fair value hierarchy.

We did not have any financial liabilities measured at fair value on a recurring basis as of December 31, 2018.

Note 5. Inventories

Inventories consist of the following:

	December 31, 2018	**December 31, 2017**
Raw materials	$ 123,528	$ 104,745
Finished goods	96,986	10,051
	$ 220,514	$ 114,796

Note 6. Property and Equipment

Property and equipment consist of the following:

	December 31, 2018	**December 31, 2017**
Cryogenic shippers and data loggers	$ 2,719,973	$ 2,107,642
Furniture and fixtures	148,002	63,411
Capitalized software	545,445	545,445
Computers and software	573,843	519,198
Machinery and equipment	567,506	362,476
Leasehold improvements	1,051,712	436,620
Fixed assets in process	1,374,906	568,688
	6,981,387	4,603,480
Less accumulated depreciation and amortization	(2,623,889)	(2,092,306)
	$ 4,357,498	$ 2,511,174

Total depreciation and amortization expense related to property and equipment amounted to $857,900 and $664,800 for the years ended December 31, 2018 and 2017, respectively.

The Company leases equipment under capitalized lease obligations with a total cost of $71,000 and accumulated amortization of $6,800 as of December 31, 2018.

Note 7. Intangible Assets

Intangible assets consist of the following:

	December 31, 2018			
	Gross Amount	**Accumulated Amortization**	**Net Amount**	**Weighted Average Amortization Period (years)**
Patents and trademarks	$184,595	$ (47,375)	$137,220	—

	December 31, 2017			
	Gross Amount	**Accumulated Amortization**	**Net Amount**	**Weighted Average Amortization Period (years)**
Patents and trademarks	$138,021	$ (47,375)	$90,646	—

Amortization expense for intangible assets for the years ended December 31, 2018 and 2017 was $0. Estimated amortization expense in calendar year 2019 is expected to be $0.

Note 8. Accrued Compensation and Related Expenses

Accrued compensation and related expenses consist of the following:

	December 31, 2018	December 31, 2017
Accrued salaries and wages	$ 900,797	$ 617,984
Accrued paid time off	361,681	307,530
	$ 1,262,478	$ 925,514

Note 9. Convertible Note

On December 14, 2018, we entered into a Securities Purchase and Registration Rights Agreement (the "SPA") with Petrichor Opportunities Fund I LP (the "Investor") in connection with (i) the issuance and sale of 1,000,000 shares of the Company's common stock, par value $0.001 per share (the "Investment Shares"), at a price equal to $10.00 per share (See Note 11) and (ii) the issuance of a $15,000,000 floating rate convertible note (the "Note") of the Company, with such Note convertible on the terms stated therein into shares of Common Stock (the "Note Shares") (together, the "Transaction"). In connection with the Transaction, the Company paid Petrichor Opportunities Fund I LP a commitment fee of $250,000 on the aggregate total purchase price for the Transaction.

The Note is the senior unsecured obligation of the Company. Unless earlier converted or redeemed, the Note will mature on December 14, 2023. The Note accrues interest at a rate equal to the greater of (a) three-month London Interbank Offered Rate (LIBOR) or (b) two percent, plus the applicable margin of six percent on the outstanding balance of the Notes, payable quarterly on the first business day of each calendar quarter.

Prior to the maturity, a holder of the Note will have the right to convert all or any portion of the Note, including any accrued but unpaid interest, into shares of Common Stock at a conversion price of $13.11 per share (the "Conversion Price"), subject to certain adjustments as set forth in the Note. The Company determined that the Note's conversion option includes a down round price protection feature which triggers upon the occurrence of a future event. As a result, the Company will account for the conversion option in accordance with ASU 2017-11 and related accounting guidance, which requires the Company to recognize a contingent beneficial conversion feature in earnings at such time the conversion price is adjusted. If, at any time on or prior to December 14, 2021, the volume-weighted average price of the Common Stock exceeds $17.48 for 15 consecutive trading days and certain additional conditions are satisfied, the Note will automatically convert into shares of Common Stock at the Conversion Price, subject to certain

conditions.

At any time after June 14, 2019, the Company has the right to redeem all, but not less than all, of the outstanding Note for cash prior to the Maturity Date, at a redemption premium on such amount as follows: (a) prior to December 14, 2019, 112%; (b) after December 14, 2019 but on or prior to December 14, 2020, 109%; and (c) after December 14, 2020, 106% (the "Redemption Premium").

Upon the occurrence of certain events of default as set forth in the Note (other than events of default relating to bankruptcy, insolvency, reorganization or liquidation proceedings) or a change of control, a holder of the Note may require the Company to redeem all or any portion of its Note at the applicable Redemption Premium. If certain events of default relating to bankruptcy, insolvency, reorganization or liquidation proceedings occur, all outstanding principal and accrued and unpaid interest (plus any accrued and unpaid late charges) will automatically become due and payable at the applicable Redemption Premium.

The Note contains certain covenants and restrictions, including, among others, that, for so long as the Note is outstanding, the Company will not incur any indebtedness (other than permitted indebtedness under the Note), permit liens on its properties (other that permitted liens under the Note), make payments on junior securities, make dividends or transfer certain assets or permit its unrestricted cash to be less than a minimum amount.

Pursuant to the SPA, the Company agreed to register the Investment Shares and the Note Shares by filing a registration statement with the SEC by the 45th calendar day after the closing date of the Transaction. The registration statement was filed on January 28, 2019 and was declared effective by the SEC on February 14, 2019.

The issuance costs for this Transaction, including the commitment fee paid to the Investor totaled approximately $480,000. As these costs were incurred to raise both debt and equity, the total costs have been allocated on a pro rata basis to the debt and equity financings based on their relative fair values. The pro-rata portion of these fees related to the Note will be amortized over the five-year stated life of the Note.

The interest expense was $66,000 for the year ended December 31, 2018, all of which is included in accounts payable and other accrued expenses in the accompanying consolidated balance sheet as of December 31, 2018.

Note 10. Commitments and Contingencies

Facility and Equipment Leases

We lease 27,600 square feet of corporate, research and development, and logistics facilities in Irvine, California under an operating lease expiring February 2023, subject to our option to extend the lease for two additional five-year periods. The initial base rent is approximately $24,700 per month. We also lease 8,100 square feet of logistics facilities in Livingston, New Jersey under an operating lease expiring December 2024, subject to our option to extend the lease for an additional five-year period. The initial base rent is approximately $7,600 per month. In addition, we lease 7,600 square feet of logistics facilities in Hoofddorp, The Netherlands under an operating lease expiring May 2023, subject to our option to extend the lease for two additional five-year periods. The initial base rent is approximately $5,400 per month. These lease agreements contain certain scheduled annual rent increases which are accounted for on a straight-line basis. In addition, we lease certain equipment which expires through January 2024.

At December 31, 2018, future minimum lease payments are as follows:

Years Ending December 31,	**Operating Leases**	**Capital Leases**
2019	$525,592	$25,940
2020	537,742	25,940
2021	538,893	8,647
2022	542,790	—
2023	198,219	—
Thereafter	109,773	—
Total minimum lease payments	$2,453,009	60,527
Amount representing interest at 6%		(4,180)
Present value of future minimum capital lease obligations		56,347
Current portion		(23,191)
		$33,156

Rent expense for the years ended December 31, 2018 and 2017 was approximately $422,600 and $298,500, respectively.

Employment Agreements

We have entered into employment agreements with certain of our officers under which payment and benefits would become payable in the event of termination by us for any reason other than cause, or upon a change in control of our Company, or by the employee for good reason.

Litigation

The Company may become a party to product litigation in the normal course of business. The Company accrues for open claims based on its historical experience and available insurance coverage. In the opinion of management, there are no legal matters involving the Company that would have a material adverse effect on the Company’s consolidated financial condition or results of operations.

Indemnities and Guarantees

The Company has made certain indemnities and guarantees, under which it may be required to make payments to a guaranteed or indemnified party, in relation to certain actions or transactions. The guarantees and indemnities do not provide for any limitation of the maximum potential future payments the Company could be obligated to make. Historically, the Company has not been obligated nor incurred any payments for these obligations and, therefore, no liabilities have been recorded for these indemnities and guarantees in the accompanying consolidated balance sheets.

The Company indemnifies its directors, officers, employees and agents, as permitted under the laws of the States of California and Nevada. In connection with its facility and equipment leases, the Company has indemnified its lessors for certain claims arising from the use of the facilities and equipment. The duration of the guarantees and indemnities varies, and is generally tied to the life of the agreements.

Note 11. Stockholders’ Equity

Authorized Stock

The Company has 100,000,000 authorized shares of common stock with a par value of $0.001 per share, and 2,500,000 undesignated or "blank check" preferred stock, with a par value of $0.001, of which, 800,000 shares have been designated as Class A Convertible Preferred Stock and 585,000 shares have been designated as Class B Convertible Preferred Stock.

Common Stock Issuances For Services

During the year ended December 31, 2018, 6,228 shares of common stock with a fair value of $70,000 were issued to two members of the board of directors as compensation for services.

During the year ended December 31, 2017, 15,872 shares of common stock with a fair value of $70,000 were issued to two members of the board of directors as compensation for services.

Petrichor Shares Issued

On December 14, 2018, we sold and issued 1,000,000 shares of the Company’s common stock, par value $0.001 per share, at a price equal to $10.00 per share for net proceeds of $9.8 million, and incurred offering costs of $192,000 that were offset against the proceeds. See Note 9 above.

August 2018 “At the Market” Equity Offering Program

On August 24, 2018, we entered into a sales agreement (the “Sales Agreement”) with Jefferies LLC (“Jefferies”) under which we can sell up to an aggregate offering price of up to $35 million of the Company’s common stock (the “Shares”), from time to time through an “at the market” equity offering program (“ATM Prospectus”).

Under the Sales Agreement, the Company will set the parameters for the sale of the Shares, including the number of Shares to be issued, the time period during which sales are requested to be made, the limitation on the number of Shares that may be sold in any one trading day and any minimum price below which sales may not be made. Subject to the terms and conditions of the Sales Agreement, Jefferies, who will act as sales agent, may sell the Shares by methods deemed to be an "at the market offering" as defined in Rule 415(a)(4) promulgated under the Securities Act of 1933, as amended, including sales made directly on the Nasdaq Capital Market, or on any other existing trading market for the Shares, in negotiated transactions at market prices prevailing at the time of sale or at prices related to such prevailing market prices and/or any other method permitted by law. Jefferies will use its commercially reasonable efforts in conducting such sales activities consistent with its normal trading and sales practices, applicable state and federal laws, rules and regulations and the rules of The Nasdaq Stock Market LLC. The Sales Agreement may be terminated by the Company upon ten days' written notice to Jefferies for any reason. Jefferies may terminate the Sales Agreement upon ten days' written notice to the Company for any reason or at any time under certain circumstances, including but not limited to the occurrence of a material adverse change in the Company.

The Sales Agreement provides that Jefferies will be entitled to compensation for its services of 3.0% of the gross sales price of all Shares sold under the Sales Agreement. The Company has no obligation to sell any Shares under the Sales Agreement and may at any time suspend solicitation and offers under the Sales Agreement. The Sales Agreement contains customary representations, warranties and agreements by the Company, indemnification obligations of the Company and Jefferies, other obligations of the parties and termination provisions. The representations, warranties and covenants contained in the Sales Agreement were made only for purposes of such agreement and, as of specific dates, were solely for the benefit of the parties to such agreement, and may be subject to limitations agreed upon by the contracting parties.

The Shares will be issued pursuant to the Company's effective shelf registration statement on Form S-3 (File No. 333-215776) (the "Registration Statement"), declared effective by the U.S. Securities and Exchange Commission on February 9, 2017. The Company filed a prospectus supplement with the SEC on August 24, 2018 relating to the offer and sale of the Shares pursuant to the Sales Agreement. During the year ended December 31, 2018, the Company received net proceeds of $3.4 million through the sale of 248,839 shares of its common stock, after deducting sales commissions and other offering expenses of $44,200, that were offset against the proceeds from this offering.

February 2018 Tender Offer

On February 8, 2018, we completed an exchange offer with respect to the Company's outstanding warrants to purchase one share of common stock at an exercise price of $3.57 per share (the "Original Warrants"). Through February 2, 2018, we offered holders of the Original Warrants the opportunity to exchange such Original Warrants for an equal number of warrants to purchase one share of common stock at an exercise price of $3.00 per share (the "New Warrants"), conditioned upon the immediate exercise of such New Warrants.

Pursuant to the February 2018 Tender Offer, warrants to purchase 1,580,388 shares of the Company's common stock were tendered by holders of warrants and were amended and exercised in connection therewith, resulting in the issuance by the Company of an aggregate of 1,580,388 shares of its common stock for aggregate gross proceeds of $4.7 million.

The Original Warrants were issued (i) in July 2015 in connection with the Company's registered public offering of 2,090,750 units (each unit consisting of one share of the Company's common stock and one Original Warrant), and (ii) in January 2016 in connection with the mandatory exchange of all of the Company's outstanding Class A Convertible Preferred Stock and Class B Convertible Preferred Stock into 4,977,038 units (each unit consisting of one share of the Company's common stock and one Original Warrant).

The terms of the New Warrants included (i) an exercise price of $3.00 per share and (ii) an exercise period that expired concurrently with the expiration of the Offer at 5:00 p.m. (Eastern Time) on February 2, 2018 (the "Expiration Date"). In addition, the shares issuable upon exercise of the New Warrants (the "New Warrant Shares") were subject to a 60-day lock-up period.

The purpose of the Offer was to raise funds to support the Company's growth plans by providing the holders of the Original Warrants an incentive to exchange their Original Warrants for New Warrants and exercise the New Warrants to purchase shares of the Company's common stock at a reduced exercise price as compared to the Original Warrants. The Company received all of the proceeds from the immediate exercise of the New Warrants, which will be used by the Company for business growth, including as working capital and for other general corporate purposes.

As a result of reducing the exercise price of certain warrants in connection with the February 2018 Tender Offer, a warrant repricing expense of $899,400 was incurred which was determined using the Black-Scholes option pricing model and was calculated as the difference between the fair value of the warrants prior to, and immediately after, the reduction in the exercise price on the date of repricing. Such amount is included in warrant inducement and repricing expense in the consolidated statement of operations for the year ended December 31, 2018. In connection with this

offering, the Company incurred $99,400 in offering costs that were offset against the proceeds from this offering.

Common Stock Offering

On March 31, 2017, we completed an underwritten public offering (the “Offering”) for gross proceeds of $12.7 million for 6,325,000 shares of our common stock (the “Shares”) pursuant to a registration statement on Form S-3 that was previously filed and declared effective by the SEC. The Shares were issued and sold pursuant to an underwriting agreement (the “Underwriting Agreement”), dated March 28, 2017, by and among the Company and Cowen and Company, LLC and Needham & Company, LLC, as Representatives of the underwriters, at a public offering price per share of $2.00. The Shares include 825,000 shares issued and sold pursuant to the Underwriters’ exercise in full of their option to purchase additional shares of common stock pursuant to the Underwriting Agreement. The Company received net proceeds of approximately $11.4 million from the Offering after deducting underwriting discounts and commissions and estimated offering expenses payable by the Company. In connection with this offering, the Company incurred $170,300 in offering costs which were offset against the proceeds from this offering.

Supplemental Warrant Exercises

In July 2017, the Company received proceeds of $1.8 million from the exercise of 605,114 supplemental warrants which were issued in connection with the October 2016 tender offer. The warrants were exercisable upon issuance and expired on the earlier of (i) October 28, 2019 and (ii) the thirtieth (30th) day after the date that the closing price of the Company’s common stock equals or exceeded $4.50 for ten consecutive trading days.

As of June 27, 2017, the closing price of the Company’s common stock was equal to or exceeded $4.50 for ten consecutive trading days. As a result, the supplemental warrants expiration date was accelerated to July 27, 2017 unless exercised prior to that date.

Common Stock Reserved for Future Issuance

As of December 31, 2018, approximately 7.8 million shares of common stock were issuable upon exercise of stock options and warrants, as follows:

Exercise of stock options	5,757,305
Exercise of warrants	2,049,534
Total shares of common stock reserved for future issuances	7,806,839

In addition, we reserved 1,372,998 shares of common stock issuable upon conversion of our Note, which reflects 120% of the maximum number of Note Shares issuable upon conversion of the Note (See Note 9).

Note 12. Stock-Based Compensation

Warrants

We typically issue warrants to purchase shares of our common stock to investors as part of a financing transaction or in connection with services rendered by placement agents and consultants. Our outstanding warrants expire on various dates through November 2021. A summary of warrant activity is as follows:

	Number of Shares	**Weighted-Average Exercise Price/Share**	**Weighted-Average Remaining Contractual Term (Years)**	**Aggregate Intrinsic Value (1)**
Outstanding — December 31, 2016	7,447,478	$ 4.29		
Issued	—	—		
Exercised	(1,664,232)	3.25		
Expired	(642,134)	8.55		

Outstanding — December 31, 2017	5,141,112	$ 4.09		
Issued	—	—		
Exercised	(3,062,739)	3.58		
Expired	(28,839)	31.78		
Outstanding — December 31, 2018	2,049,534	$ 4.03	1.5	$14,563,400
Vested (exercisable) — December 31, 2018	2,049,534	$ 4.03	1.5	$14,563,400

(1) Aggregate intrinsic value represents the difference between the exercise price of the warrant and the closing market price of the Company's common stock on December 31, 2018, which was $11.03 per share.

The following table summarizes information with respect to warrants outstanding and exercisable at December 31, 2018:

Exercise Price	**Number Outstanding**	**Weighted-Average Remaining Contractual Life (Years)**	**Weighted-Average Exercise Price**	**Number Exercisable**	**Weighted-Average Exercise Price**
$ 2.04	70,000	2.3	$ 2.04	70,000	$ 2.04
$ 3.57	1,645,512	1.6	$ 3.57	1,645,512	$ 3.57
$ 6.00	329,734	1.1	$ 6.00	329,734	$ 6.00
$61.20 – $129.60	4,288	0.3	$ 63.58	4,288	$ 63.58
	2,049,534			2,049,534	

During the year ended December 31, 2018, the Company issued 1,179,784 shares of common stock in connection with the exercise of warrants for proceeds of $4.5 million. In addition, during the year ended December 31, 2018, the Company issued 155,886 shares of common stock in connection with the cashless exercise of warrants to purchase 302,567 shares of common stock.

During the year ended December 31, 2017, the Company issued 1,403,149 shares of common stock in connection with the exercise of warrants for proceeds of $4.5 million. In addition, during the year ended December 31, 2017, the Company issued 144,164 shares of common stock in connection with the cashless exercise of warrants to purchase 261,083 shares of common stock.

The total intrinsic value of warrants exercised during the years ended December 31, 2018 and 2017 was $21.5 million and $7.1 million, respectively.

Stock Options

We have five stock incentive plans: the 2002 Stock Incentive Plan (the “2002 Plan”), the 2009 Stock Incentive Plan (the “2009 Plan”), the 2011 Stock Incentive Plan (the “2011 Plan”), the 2015 Omnibus Equity Incentive Plan (the “2015 Plan”), and the 2018 Omnibus Equity Incentive Plan (the “2018 Plan”), (collectively, the “Plans”). The 2002 Plan, the 2009 Plan, the 2011 Plan and the 2015 Plan (the “Prior Plans”) have been superseded by the 2018 Plan. In May 2018, the stockholders approved the 2018 Plan for issuance up to 3,730,179 shares. The Prior Plans will remain in effect until all awards granted under such Prior Plans have been exercised, forfeited, cancelled, or have otherwise expired or terminated in accordance with the terms of such awards, but no awards will be made pursuant to the Prior Plans after the effectiveness of the 2018 Plan. As of December 31, 2018, the Company had 4,114,654 shares available for future awards under the 2018 Plan.

During the years ended December 31, 2018 and 2017, we granted stock options at exercise prices equal to or greater than the quoted market price of our common stock on the grant date. The fair value of each option grant was estimated on the date of grant using Black-Scholes with the following assumptions:

	December 31, 2018		**December 31, 2017**	
Expected life (years)	5.3 – 7.0		5.3 – 6.6	
Risk-free interest rate	2.59% - 3.07	%	1.79% - 2.23	%
Volatility	97.7% - 110	%	111% - 115	%
Dividend yield	0	%	0	%

The expected option life assumption is estimated based on the simplified method. Accordingly, the Company has utilized the average of the contractual term of the options and the weighted average vesting period for all options to calculate the expected option term. The risk-free interest rate assumption is based upon observed interest rates appropriate for the expected term of our employee stock options. The expected volatility is based on the historical

volatility of our stock commensurate with the expected life of the stock-based award. We do not anticipate paying dividends on the common stock in the foreseeable future.

We recognize stock-based compensation cost over the vesting period using the straight-line single option method. Stock-based compensation expense is recognized only for those awards that ultimately vest.

Total stock-based compensation expense related to all of our share-based payment awards is comprised of the following:

	Year Ended December 31,	
	2018	2017
Cost of revenues	$ 244,239	$ 43,349
General and administrative	3,756,820	2,689,496
Sales and marketing	1,178,115	723,648
Engineering and development	299,451	91,288
	$ 5,478,625	$ 3,547,781

A summary of stock option activity is as follows:

	Number of Shares	**Weighted-Average Exercise Price/Share**	**Weighted-Average Remaining Contractual Term (Years)**	**Aggregate Intrinsic Value (1)**
Outstanding — December 31, 2016	4,512,550	$ 4.01		
Granted (weighted-average fair value of $3.85 per share)	1,176,300	4.59		
Exercised	(209,456)	3.09		
Forfeited	(101,199)	3.04		
Expired	(55,337)	7.89		
Outstanding — December 31, 2017	5,322,858	$ 4.16		

	Number of Shares	Weighted-Average Exercise Price/Share	Weighted-Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (1)
Granted (weighted-average fair value of $7.78 per share)	1,123,100	9.48		
Exercised	(445,989)	3.38		
Forfeited	(213,142)	6.79		
Expired	(29,522)	5.10		
Outstanding — December 31, 2018	5,757,305	$ 5.16	7.2	$34,176,300
Vested (exercisable) — December 31, 2018	3,802,043	$ 4.54	6.6	$24,688,300
Expected to vest after December 31, 2018 (unexercisable)	1,955,262	$ 6.35	8.4	$9,487,900

(1) Aggregate intrinsic value represents the difference between the exercise price of the option and the closing market price of the common stock on December 31, 2017, which was $11.03 per share.

The following table summarizes information with respect to stock options outstanding and exercisable at December 31, 2018:

Exercise Price	Number Outstanding	Weighted-Average Remaining Contractual Life (Years)	Weighted-Average Exercise Price	Number Exercisable	Weighted-Average Exercise Price
$1.08 – 2.66	805,858	6.9	$ 1.90	543,558	$ 1.96
$3.00 – 3.44	1,698,159	6.8	$ 3.22	1,146,046	$ 3.19
$4.56 – 4.92	770,891	6.4	$ 4.77	760,392	$ 4.77
$5.00 – 6.65	856,070	6.6	$ 5.04	710,887	$ 5.03
$7.67– 7.89	436,123	6.4	$ 7.80	381,030	$ 7.80
$8.17 – 8.65	737,878	9.2	$ 8.62	142,786	$ 8.62
$9.14 – 22.68	452,326	9.3	$ 10.95	117,344	$ 9.75
	5,757,305			3,802,043	

As of December 31, 2018, there was unrecognized compensation expense of $9.5 million related to unvested stock options, which we expect to recognize over a weighted average period of 2.8 years.

The total intrinsic value of options exercised during the years ended December 31, 2018 and 2017 was $3.7 million and $797,600, respectively.

Note 13. Revenue Recognition

In May 2014, the FASB issued Accounting Standards Update ASU 2014-09, “Revenue from Contracts with Customers (Topic 606),” which modifies how all entities recognize revenue. Topic 606 outlines a comprehensive five-step revenue recognition model based on the principle that an entity should recognize revenue to depict the transfer of promised goods or services to customers at an amount that reflects the consideration the entity expects to be entitled to in exchange for those goods or services. We adopted Topic 606 on January 1, 2018 using the modified retrospective transition method. The adoption of Topic 606 did not have a material effect on our financial statements or results of operations, and no cumulative catch-up adjustment to the opening balance of retained earnings was required. We used the related practical expedients that allow us to not disclose the transaction price allocated to remaining unsatisfied obligations and an explanation of when we expect to recognize the related revenue.

Revenues are recognized when control is transferred to customers, in an amount that reflects the consideration the Company expects to be entitled to in exchange for those goods and services. Revenue recognition is evaluated through the following five steps: (i) identification of the contract, or contracts, with a customer; (ii) identification of the performance obligations in the contract; (iii) determination of the transaction price; (iv) allocation of the transaction price to the performance obligations in the contract; and (v) recognition of revenue when or as a performance obligation is satisfied.

Nature of Goods and Services

The Company provides Shippers to its customers and charges a fee in exchange for the use of the Shipper under long-term agreements with customers. The Company's arrangements convey to the customers the right to use the Shippers over a period of time. The Company retains title to the Shippers and provides its customers the use of the Shipper for a specified shipping cycle. At the culmination of the customer's shipping cycle, the Shipper is returned to the Company.

The vast majority of our revenues are covered under long-term agreements. We have determined that individual Statements of Work ("SOW"), whose terms and conditions taken with a Master Services Agreement ("MSA"), create the Topic 606 contracts which are generally short-term in nature (e.g., 15-day shipping cycle). Our agreements (including SOWs) generally do not have multiple performance obligations and, therefore, do not require an allocation of a single price amongst multiple goods or services. Prices under these agreements are generally fixed. The Company recognizes revenue for the use of the shipper at the time of the delivery of the shipper to the end user of the enclosed materials, and at the time that collectability is probable.

The Company also provides logistics support and management to some customers, which may include onsite logistics personnel. Revenue is recognized for these services as services are rendered over time and at the time that collectability is probable.

The Company also provides short-term logistics and engineering consulting services to some customers, with fees tied to the completion of contractually defined services. We recognize revenue from these services when we satisfy the performance obligation.

Revenue Disaggregation

The Company operates in one reportable segment and evaluates financial performance on a Company-wide basis. We consider sales disaggregated by end-market to depict how the nature, amount, timing and uncertainty of revenues and cash flows are impacted by changes in economic factors. The following table disaggregates our revenues by major source for the years ended December 31, 2018 and 2017:

Years ended

	December 31,	
(amounts in thousands)	2018	2017
Biopharmaceutical	$16,477	$9,113
Reproductive medicine	2,173	1,706
Animal health	976	1,135
Total revenues	$19,626	11,954

Our geographical revenues, by origin, for the years ended December 31, 2018 and 2017, were as follows:

	Years Ended December 31,	
(amounts in thousands)	2018	2017
Americas	$17,877	$10,638
Europe, the Middle East and Africa (EMEA)	1,365	963
Asia Pacific (APAC)	384	353
	$19,626	$11,954

Performance Obligations

At contract inception, an assessment of the goods and services promised in the contracts with customers is performed and a performance obligation is identified for each distinct promise to transfer to the customer a good or service (or bundle of goods or services). To identify the performance obligations, the Company considers all of the goods or services promised in the contract regardless of whether they are explicitly stated or are implied by customary business practices. Revenue is recognized when our performance obligation has been met. The Company considers control to have transferred upon delivery because the Company has a present right to payment at that time, the Company has transferred use of the asset, and the customer is able to direct the use of, and obtain substantially all of the remaining benefits from, the asset.

For arrangements under which the Company provides logistics support and management to the customer, the Company satisfies its performance obligations as those services are performed whereby the customer simultaneously receives and consumes the benefits of such services under the agreement.

Revenue generated from short-term logistics and engineering consulting services provided to customers is recognized or when the Company satisfies the contractually defined performance obligations.

Shipping and handling activities related to contracts with customers are accounted for as costs to fulfill our promise to transfer the associated products pursuant to the accounting policy election allowed under Topic 606. Accordingly, the Company records amounts billed for shipping and handling as a component of revenue. Shipping and handling fees and costs are included in cost of revenues in the accompanying consolidated statements of operations.

Revenues are recognized net of any taxes collected from customers, which are subsequently remitted to governmental authorities.

Significant Payment Terms

Pursuant to the Company’s contracts with its customers, amounts billed for services or products delivered by the Company are generally due and payable in full within 15 days from the date of the invoice (except for any amounts disputed by the customer in good faith). Accordingly, the Company determined that its contracts with customers do not include extended payment terms or a significant financing component.

Variable Consideration

In some cases, the nature of the Company’s contracts may give rise to variable consideration, including discounts and allowances or other similar items that generally decrease the transaction price.

Variable consideration is estimated at the most likely amount that is expected to be earned. Estimated amounts are included in the transaction price to the extent it is probable that a significant reversal of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is resolved. Estimates of variable consideration and determination of whether to include estimated amounts in the transaction price are based largely on an assessment of the anticipated performance and all information (historical, current and forecasted) that is reasonably available.

Revenues are recorded net of variable consideration, such as discounts and allowances.

Warranties

The Company’s products and services are provided on an “as is” basis and no warranties are included in the contracts with customers. Also, the Company does not offer separately priced extended warranty or product maintenance contracts.

Contract Assets

Typically, we invoice the customer and recognize revenue once we have satisfied our performance obligation. Accordingly, our contract assets comprise accounts receivable. Generally, we do not have material amounts of other contract assets since revenue is recognized as control of goods is transferred or as services are performed.

Contract Liabilities (Deferred Revenue)

Contract liabilities are recorded when cash payments are received in advance of the Company's performance. Deferred revenue was $66,300 and $73,400 at December 31, 2018 and 2017, respectively. During the year ended December 31, 2018, the Company recognized revenues of $73,400 related to contract liabilities outstanding at the beginning of the year.

Practical Expedients and Exemptions

We have elected the following practical expedients allowed under Topic 606:

- Payment terms with our customers, which are one year or less, are not considered a significant financing component.
- Shipping and handling fees and costs incurred in connection with products sold are recorded in cost of sales and are not considered a performance obligation to our customers.
- Our performance obligations on our orders are generally satisfied within one year from a given reporting date and, therefore, we omit disclosure of the transaction price allocated to remaining performance obligations on open orders.
- The Company expenses incremental direct costs of obtaining a contract (sales commissions) when incurred because the amortization period is generally 12 months or less. The Company does not incur costs to fulfill a customer contract that meet the requirements for capitalization.

Note 14. Income Taxes

Loss before provision for income taxes was attributed to the following jurisdictions for the years ended December 31, 2018 and 2017:

	Years Ended December 31,	
	2018	2017
	(000's)	
United States	$(9,233)	$(7,894)
Foreign	(303)	—
	$(9,536)	$(7,894)

The provision for income taxes consists of the following for the years ended December 31, 2018 and 2017:

	Years Ended December 31,	
	2018	2017
	(000's)	
Current:		
Federal	$—	$—
State	20	5
Foreign	—	—
Total current expense	20	5
Deferred:		
Federal	1,167	5,941
State	399	(320)
Foreign	60	—
Change in valuation allowance	(1,626)	(5,621)
Total deferred expense	—	—
Total provision for income taxes	$20	$5

Significant components of the Company's deferred tax assets as of December 31, 2018 and 2017 are shown below:

	December 31,	
	2018	2017
	(000's)	
Deferred tax assets:		
Net operating loss carryforward	$16,272	$15,307
Research credits	167	100
Expenses recognized for granting of options and warrants	2,566	2,014
Accrued expenses and reserves	83	41
Valuation allowance	(19,088)	(17,462)
	$—	$—

Based on the weight of available evidence, the Company's management has determined that it is more likely than not that the net deferred tax assets will not be realized. Therefore, the Company has recorded a full valuation allowance against the net deferred tax assets. The Company's income tax provision consists of state minimum taxes.

The provision for income taxes differs from that computed using the federal statutory rate applied to loss before provision for income taxes as follows:

	December 31,	
	2018	2017
	(000's)	
Computed tax benefit at federal statutory rate	$(2,002)	$(2,684)
State tax, net of federal benefit	(348)	(277)
Stock compensation	472	503
Warrant inducement and repricing costs	189	—
Permanent items and other	82	56
Tax Cuts and Jobs Act	-	8,032
Valuation allowance	1,627	(5,625)
	$20	$5

At December 31, 2018, the Company has federal and state net operating loss carryforwards of approximately $58,172,000 and $47,329,000 which will begin to expire in 2019, unless previously utilized, and as of 2012 have already begun to expire for state carryforwards. In addition, the Company has federal net operating losses of approximately $3,889,000 generated in 2018 that can be carried over indefinitely and may be used to offset up to 80% of federal taxable income. At December 31, 2018, the Company has foreign net operating loss carryforwards of approximately $303,000, which begin to expire in 2027. At December 31, 2018, the Company has federal and California research and development tax credits of approximately $107,000 and $91,000, respectively. The Company also has approximately $42,000 of California New Jobs Credits. The federal research tax credit begins to expire in 2026 unless previously utilized and the California research tax credit has no expiration date. The California New Jobs Credit began to expire in 2018.

Utilization of the net operating loss and research and development carryforwards might be subject to a substantial annual limitation due to ownership change limitations that may have occurred or that could occur in the future, as required by Section 382 of the Internal Revenue Code of 1986, as amended (the “Code”), as well as similar state and foreign provisions. These ownership changes may limit the amount of NOL and R&D credit carryforwards that can be utilized annually to offset future taxable income and tax, respectively. In general, an “ownership change” as defined by Section 382 of the Code results from a transaction or series of transactions over a three-year period resulting in an ownership change of more than 50 percentage points of the outstanding stock of a company by certain stockholders or public groups. Since the Company’s formation, the Company has raised capital through the issuance of capital stock on several occasions which, combined with the purchasing stockholders’ subsequent disposition of those shares, may have resulted in such an ownership change, or could result in an ownership change in the future upon subsequent disposition.

The Company has not completed a study to assess whether an ownership change has occurred. If the Company has experienced an ownership change, utilization of the NOL or R&D credit carryforwards would be subject to an annual limitation under Section 382 of the Code, which is determined by first multiplying the value of the Company’s stock at the time of the ownership change by the applicable long-term, tax-exempt rate, and then could be subject to additional adjustments, as required. Any limitation may result in expiration of a portion of the NOL or R&D credit carryforwards before utilization. Further, until a study is completed and any limitation is known, no amounts are being considered as an uncertain tax position or disclosed as an unrecognized tax benefit. Due to the existence of the valuation allowance, future changes in the Company’s unrecognized tax benefits will not impact its effective tax rate. Any carryforwards that will expire prior to utilization as a result of such limitations will be removed from deferred tax assets with a corresponding reduction of the valuation allowance.

A reconciliation of the beginning and ending amounts of unrecognized tax positions are as follows (in thousands):

	Federal		State	
	December 31,		December 31,	
	2018	2017	2018	2017
Unrecognized tax positions, beginning of period	$ 13	$ -	$ 11	$ -
Gross increase – current period tax positions	15	7	12	7
Gross decrease – prior period tax positions	(2)	-	-	-
Gross increase – prior period tax positions	-	6	(1)	4
Expiration of statute of limitations	-	-	-	-
Unrecognized tax positions, end of period	$ 26	$ 13	$ 22	$ 11

If recognized, none of the unrecognized tax positions would impact the Company's income tax benefit or effective tax rate as long as the Company's deferred tax assets remain subject to a full valuation allowance. The Company does not expect any significant increases or decreases to the Company's unrecognized tax positions within the next 12 months.

On December 22, 2017, the President of the United States signed into law the Tax Cuts and Jobs Act (the "Tax Act"). The Tax Act amends the Internal Revenue Code to reduce tax rates and modify policies, credits, and deductions for individuals and businesses. For businesses, the Tax Act reduces the corporate tax rate from a maximum of 35% to a flat 21% rate. The rate reduction is effective on January 1, 2018. As a result of the rate reduction, the Company has reduced the deferred tax asset balance as of December 31, 2017 by $8.0 million. Due to the Company's full valuation allowance position, there was no net impact on the Company's income tax provision at December 31, 2017 as the reduction in the deferred tax asset balance was fully offset by a corresponding decrease in the valuation allowance.

In conjunction with the Tax Act, the SEC staff issued Staff Accounting Bulletin No. 118 ("SAB 118") to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Tax Act, providing one year to gather information for such analyses. As of December 31, 2018, we have completed our assessment of the impact of the Tax Cuts and Jobs Act, and as a result, there were no changes to the provisional amounts recorded as of December 31, 2017.

Note 15. Subsequent Events

The Company has evaluated subsequent events through the filing date of this Annual Report on Form 10-K and determined that no subsequent events have occurred that would require recognition in the consolidated financial statements or disclosures in the notes thereto other than discussed in the accompanying notes.

Note 16. Quarterly Financial Data (Unaudited)

A summary of quarterly financial data is as follows ($ in ‘000’s):

	Quarter Ended			
	March 31	June 30	September 30	December 31
Year ended December 31, 2018				
Total revenues	$4,023	$4,627	$ 5,285	$ 5,691
Gross margin	$2,184	$2,504	$ 2,736	$ 2,816
Loss from operations	$(1,798)	$(2,465)	$ (2,161)	$ (2,220)
Net loss	$(2,683)	$(2,471)	$ (2,144)	$ (2,258)
Net loss per share - basic and diluted	$(0.10)	$(0.09)	$ (0.07)	$ (0.08)

Year ended December 31, 2017 &