UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

X **ANNUAL REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2021

☐ **TRANSITION REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from _____ to _____

Commission File No. 0-51891

INTERNATIONAL STEM CELL CORPORATION

(Exact name of registrant as specified in its charter)

Delaware	**20-4494098**
(State of other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification Number)**
9745 Businesspark Ave San Diego, CA	**92131**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number: (760) 940-6383

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

Title of each class	**Name of each exchange on which registered**
None	**None**

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

Common Stock, $0.001 par value per share
(Title of class)

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

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	X	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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☐

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 voting and non-voting common equity held by non-affiliates of the registrant was approximately $2,518,900 based upon the closing price of the common stock on June 30, 2021 (the last business day of the registrant's most recently completed second fiscal quarter) on the OTC QB Bulletin Board. Shares of common stock held by each officer, director and holder of five percent or more of the outstanding common stock have been excluded in that such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

As of March 25, 2022 there were 8,004,389 shares of the registrant's common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Information from portions of the registrant's definitive Proxy Statement for its Annual Meeting of Stockholders to be held in 2022 is incorporated by reference into Part III of this Form 10-K.

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements. For example, statements regarding our expected financial position, business strategy and other plans and objectives for future operations, and assumptions and predictions about potential markets, future product demand, product development targets and expected timing, expenses, sales and the potential effects of the COVID-19 pandemic are all forward-looking statements. These statements may be found in the items of this Annual Report entitled "Description of Business" and "Management's Discussion and Analysis of Financial Condition and Results of Operations," as well as in this Annual Report generally. These statements are generally accompanied by words such as "intend," "anticipate," "believe," "estimate," "potential(ly)," "continue," "forecast," "predict," "plan," "may," "will," "could," "would," "should," "expect," or the negative of such terms or other comparable terminology.

We have based these forward-looking statements on our current expectations and projections about future events. We believe that the assumptions and expectations reflected in such forward-looking statements are reasonable, based on information available to us on the date hereof, but we cannot assure you that these assumptions and expectations will prove to have been correct or that we will take any action that we may presently be planning. However, these forward-looking statements are inherently subject to known and unknown risks and uncertainties. Actual results or experience may differ materially from those expected or anticipated in the forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, research and product development uncertainties, clinical trial results, regulatory policies and approval requirements, competition from other similar businesses, market and general economic factors, the availability of resources and the other risks discussed in Item 1A of this Annual Report. This discussion should be read in conjunction with the consolidated financial statements and notes thereto included in this Annual Report.

We have identified some of the important factors that could cause future events to differ from our current expectations and they are described in this Annual Report in the section entitled "Risk Factors" which you should review carefully. Please consider our forward-looking statements in light of those risks as you read this Annual Report. If one or more of these or other risks or uncertainties materialize, or if our underlying assumptions prove to be incorrect, actual results may vary materially from what we project. We do not undertake, and specifically decline any obligation, to update any forward-looking statements or to publicly announce the results of any revisions to any statements to reflect new information or future events or developments.

PART I

ITEM 1. BUSINESS

Business Overview

International Stem Cell Corporation (sometimes referred to herein as "ISCO", the "Company", "we", "us", or "our") is a clinical stage biotechnology company focused on therapeutic and biomedical product development with multiple long-term therapeutic opportunities and two revenue-generating businesses offering potential for increased future revenue.

We currently have no revenue generated from our principal operations in therapeutic and clinical product development through research and development efforts. We have generated revenue from our two commercial businesses, anti-aging and research products, of a total of $7.2 million and $7.1 million for the years ended December 31, 2021 and 2020, respectively.

Our products are based on multi-decade experience with human cell culture and a proprietary type of pluripotent stem cells, "human parthenogenetic stem cells" ("hpSCs"). Our hpSCs are comparable to human embryonic stem cells ("hESCs") in that they have the potential to be differentiated into many different cells in the human body. However, the derivation of hpSCs does not require the use of fertilized eggs or the destruction of human embryos and also offers the potential for the creation of immune-matched cells and tissues that are less likely to be rejected following transplantation. ISCO scientists have created the first parthenogenetic, homozygous stem cell line that can be a source of therapeutic cells for hundreds of millions of individuals with minimal immune rejection after transplantation. We have facilities and manufacturing processes that we believe comply with the requirements of current Good Manufacturing Practice ("GMP") standards as defined by the U.S. Code of Federal Regulations and promulgated by the Food and Drug Administration ("FDA").

We are developing different cell types from our stem cells that may result in therapeutic products. We focus on applications where cell and tissue therapy are already proven but where there is an insufficient supply of functional cells or tissue. We believe that the most promising potential clinical application of our technology is for neural stem cells (ISC-hpNSC®) for treatment of Parkinson's disease and potentially other central nervous system disorders, such as traumatic brain injury, stroke and Alzheimer's disease.

Our most advanced project is the neural stem cell program for the treatment of Parkinson's disease. In 2013 we published in Nature Scientific Reports the basis for our patent on a new method of manufacturing neural stem cells which is used to produce the clinical-grade cells necessary for future clinical studies and commercialization. In 2014 we completed the majority of the preclinical research establishing the safety profile of neural stem cells ("NSC") in various animal species including non-human primates. In June 2016 we published the results of a 12-month pre-clinical non-human primate study that demonstrated the safety, efficacy and mechanism of action of the ISC-hpNSC®. In 2017, we began our Phase I trial of ISC-hpNSC®, human parthenogenetic stem cell-derived neural stem cells for the treatment of Parkinson's disease. This trial involves three groups, each with four patients, with each group receiving an increasing amount of ISC-hpNSC via intracerebral transplantation. Patients are evaluated for 12 months (active phase of the study) with an additional 5-year observational follow-up period to assess safety. We reported 12-month results from the first cohort and 6-month interim results of the second cohort at the Society for Neuroscience annual meeting (Neuroscience 2018) in November 2018. In April 2019, we announced the completion of subject enrollment, with the 12th subject receiving a transplantation of the highest dose of cells. There have been no safety signals or serious adverse effects seen to date as related to the transplanted ISC-hpNSC® cells. We announced successful completion of the dose escalating phase 1 clinical trial in June 2021. In terms of preliminary efficacy, where scores are compared against baseline before transplantation, we observed a potential dose-dependent response, with an apparent peak effectiveness at our middle dose. The % OFF-Time, which is the time during the day when levodopa medication is not performing optimally and PD symptoms return, decreased an average 47% from the baseline at 12 months post transplantation in cohort 2. This trend continued through 24 months where the % OFF-Time in the second cohort dropped by 55% from the initial reading. The same was true for % ON-Time without dyskinesia, which is the time during the day when levodopa medication is performing optimally without dyskinesia. The % ON-Time increased an average of 42% above the initial evaluation at 12 months post-transplantation in the second cohort.

Each of these product candidates will require extensive preclinical and clinical development and may require specific unforeseen licensing rights obtained at substantial cost before regulatory approval may be achieved and the products sold for therapeutic use.

Additionally, we are subject to various other risks; for example, our business is at an early stage of development and we may not develop therapeutic products that can be commercialized; we have a history of operating losses, do not expect to be profitable in the near future and our independent registered public accounting firm has expressed substantial doubt as to our ability to continue as a going concern; and we will need additional capital to conduct our operations and develop our products and our ability to obtain the necessary funding is uncertain. Please see the heading "Risk Factors" beginning on page 14.

Corporate Structure

International Stem Cell Corporation is a Delaware corporation which has four wholly owned subsidiaries: International Stem Cell Corporation, a California corporation ("ISC California"), LCT, LSC, and Cyto Therapeutics

Cyto Therapeutics was registered in the state of Victoria, Australia on December 19, 2014 and is a limited proprietary company and a wholly-owned subsidiary of the Company. Cyto Therapeutics is a research and development company for the Therapeutic Market, which is conducting clinical trials in Australia for the use of ISC-hpNSC® in the treatment of Parkinson's disease.

Our principal executive offices are located at 9745 Businesspark Ave, San Diego, CA 92131, and our telephone number is (760) 940-6383. Our corporate website address is www.internationalstemcell.com, Lifeline Cell Technology's website address is www.lifelinecelltech.com, and Lifeline Skin Care's website address is www.lifelineskincare.com. Information found on, or accessible through, our websites is not a part of, and is not incorporated into, this Annual Report on Form 10-K. Our common stock is currently quoted on the OTC QB and trades under the symbol "ISCO".

Frequently Asked Questions

What are Stem Cells?

Cells are the basic living units that make up humans, animals, plants and other organisms. Stem cells have two important characteristics that distinguish them from other types of cells. First, they can renew themselves for long periods of time. Second, they are unspecialized and under certain conditions can be induced to become cells with special functions such as metabolically active cells of the liver or transparent and protective cells of the eye. Until recently, scientists have worked with two major kinds of stem cells, *embryonic stem cells* (hESCs) and *adult stem cells* that each has different properties and characteristics. ISCO has developed a third category of stem cells named *parthenogenetic stem cells* (the hpSCs mentioned above) that promise to have significant therapeutic advantages relative to these other types.

What are Pluripotent Stem Cells?

Pluripotent stem cells are able to be differentiated or developed into virtually any other cell made in an organism. Both embryonic and parthenogenetic stem cells are pluripotent. Some scientists are exploring manipulation of adult cells into a potentially pluripotent stage. This type of stem cells is called *induced pluripotent stem cells*.

What are Embryonic Stem Cells?

Embryonic stem cells are derived from embryos at an early stage of development, typically when they are in a structure of a small number of cells called the *blastocyst.* Embryonic stem cells are expanded in a laboratory cell culture process. Once cell lines are established, batches of them can be frozen and shipped to other laboratories for further culture and experimentation.

What are Adult Stem Cells?

An adult stem cell is an undifferentiated cell found among differentiated cells in a tissue or organ. An adult stem cell can renew itself (generally to a lesser degree than can embryonic or parthenogenetic stem cells) and differentiate to a limited number of specialized cell types. These cells can be isolated from different tissues such as the bone marrow, fat tissue, and umbilical cord blood.

Why are Embryonic Stem Cells Important?

Human embryonic stem cells are able to differentiate into virtually any other cell in the body and to reproduce themselves almost indefinitely. In theory, if stem cells can be grown and their development directed in culture, it would be possible to grow cells for the treatment of specific diseases.

An early potential application of human embryonic stem cell technology may be in drug screening and toxicology testing.

The study of human development may also benefit from embryonic stem cell research in that understanding the events that occur at the first stages of development has potential clinical significance for preventing or treating birth defects, infertility and pregnancy loss. The earliest stages of human development have been difficult or impossible to study. Human embryonic stem cells offer insights into developmental events that cannot be studied directly in humans or fully understood through the use of animal models.

What are Parthenogenetic Stem Cells and how are they different?

Parthenogenetic stem cells are pluripotent stem cells created from unfertilized human eggs through a "parthenogenesis" process. Parthenogenesis requires that an unfertilized human egg be "activated" by chemical, physical or other means. Activation results in a non-viable "parthenote" from which pluripotent parthenogenetic stem cell lines can be derived. The cell lines used by ISCO are human parthenogenetic stem cells. Currently, ISCO owns the largest published collection of human parthenogenetic stem cell lines. Our research is based on perfecting proprietary techniques for deriving stem cells through parthenogenesis that result in stem cell lines that have the same capacity to become all cells found in the human body, but do not require use or destruction of a viable human embryo. Furthermore, parthenogenetic stem cells can be produced in a simplified ("homozygous") form that enables each line to be an immunological match for millions of people. We do not obtain stem cells from fetal tissue nor does our technology require the use of discarded frozen human embryos.

Why Not Use Stem Cells Derived from Adults?

There are several approaches now in human clinical trials that utilize adult stem cells. However, these cells have limited availability and limited ability to proliferate in culture as well as risk of genetic mutation. Therefore, obtaining clinically significant amounts of adult stem cells may prove to be difficult.

Why is Stem Cell Research Controversial?

The sources of some types of stem cells cause social and religious controversy. For example, some scientists obtain stem cells from aborted fetal tissue, causing opposition from those opposed to abortion. Another controversial source of stem cells is residual human embryos (from fertilized human eggs) that remain after vitro fertilization procedures and are used to create embryonic stem cell lines.

Is Stem Cell Research Banned in the United States?

Embryonic stem cell research, in general, is not banned in the United States. Work by private organizations is not limited except by the restrictions applicable to all human research. In addition, Proposition 71 in California, which voters approved in November 2004, specifically allows state funds to be used for stem cell research.

Why Not Use the Currently "Approved" Embryonic Stem Cells Lines?

Most, if not all, human embryonic stem cell lines in research now have complex ("heterozygous") immune compositions that are likely to cause the differentiated cells to be rejected by most patients.

Why Not use Adult Cells Reprogrammed to become Pluripotent Cells?

Induced pluripotent cells ("iPSs") benefit from not being derived from human embryos but may face a number of other limitations such as uncertainty as to which genes are turned on and off. Furthermore, like embryonic stem cells, iPSs have complex ("heterozygous") immune compositions that are likely to cause the differentiated cells to be rejected by most patients.

Ethical Issues

The use of embryonic stem cells derived from fertilized human eggs has created an ethical debate in the United States and around the world. However, since no fertilized human eggs are used in creating our stem cells and no human embryo is being created, used or destroyed, we expect that our parthenogenetic stem cells will be more readily accepted in circumstances where there are ethical concerns with using traditional embryonic stem cells.

We also have licensed worldwide rights to use a technology known as Somatic Cell Nuclear Transfer ("SCNT") to create human stem cells. The President's Council on Bioethics, as reported in the publication "Reproduction and Responsibility—The Regulation of New Biotechnologies 2004," has agreed on a series of recommendations for the use of such technology. Countries such as the United Kingdom have made similar recommendations.

Our Platform Technology

We have developed a proprietary process based on parthenogenesis for the creation of a new type of stem cell that has shown to exhibit the pluripotency and proliferative benefits of embryonic stem cells yet avoid the use or destruction of fertilized human eggs or embryos. Furthermore, since parthenogenetic stem cells can be created with immunogenetically identical ("homozygous") chromosome

pairs, each line has potential to be an immune match for tens of millions of patients. If such cells were to be differentiated into functional mature cells they would, theoretically, be universally applicable across a wide range of medical conditions.

We also hold licenses to three other technologies to create human pluripotent stem cells: SCNT technology (as mentioned previously); a technology that may be useful to create induced pluripotent stem cells ("iPS"); and "single blastomere technology" which uses a single cell obtained from a fertilized blastocyst to create an embryonic stem cell line. Each of these technologies has unique cell therapy applications and provides us with a broad base of technologies from which we can operate in the future.

Our Facilities

We have built the capacity to manufacture human cells for research use in our research and development ("R&D") facility in San Diego, California and for preclinical and clinical trials and ultimately for therapeutic use through the completion of our cGMP manufacturing facility in Frederick, Maryland.

Our Products

Therapeutic Product Candidates

We are developing different cell types from our stem cells that may result in therapeutic products. We focus on applications where cell and tissue therapy is already proven but where there is an insufficient supply of functional cells or tissue. We believe that the most promising potential clinical application of our technology is for neural stem cells (ISC-hpNSC®) for treatment of Parkinson's disease and potentially other neurological disorders, such as spinal cord injury, traumatic brain injury and stroke.

Our most advanced project is the neural stem cell program for the treatment of Parkinson's disease. In 2013 we published in Nature Scientific Reports the basis for our patent on a new method of manufacturing neural stem cells which we intend to use to produce the clinical-grade cells necessary for future clinical studies and commercialization. In 2016 we published all important pre-clinical data in two peer-reviewed journals, Cell Transplantation and Nature Scientific Reports. In 2014 we completed the majority of the preclinical research establishing the safety profile of NSC in various animal species including non-human primates. In June 2016 we published the results of a 12-month pre-clinical non-human primate study that demonstrated the safety, efficacy and mechanism of action of the ISC-hpNSC®. In 2017, we began our Phase I trial of ISC-hpNSC®, human parthenogenetic stem cell-derived neural stem cells for the treatment of Parkinson's disease. This trial involves three groups, each with four patients, with each group receiving an increasing amount of ISC-hpNSC via intracerebral transplantation. Patients are evaluated for 12 months (active phase of the study) with an additional 5-year observational follow-up period to assess safety. We reported 12-month results from the first cohort and 6-month interim results of the second cohort at the Society for Neuroscience annual meeting (Neuroscience 2018) in November 2018. In April 2019, we announced the completion of subject enrollment, with the 12th subject receiving a transplantation of the highest dose of cells. There have been no safety signals or serious adverse effects seen to date as related to the transplanted ISC-hpNSC® cells.

We announced successful completion of the dose escalating phase 1 clinical trial in June 2021. In terms of preliminary efficacy, where scores are compared against baseline before transplantation, we observed a potential dose-dependent response, with an apparent peak effectiveness at our middle dose. The % OFF-Time, which is the time during the day when levodopa medication is not performing optimally and PD symptoms return, decreased an average 47% from the baseline at 12 months post transplantation in cohort 2. This trend continued through 24 months where the % OFF Time in the second cohort dropped by 55% from the initial reading. The same was true for % ON-Time without dyskinesia, which is the time during the day when levodopa medication is performing optimally without dyskinesia. The % ON-Time increased an average of 42% above the initial evaluation at 12 months post-transplantation in the second cohort.

In August 2014, we began evaluating the use of ISC-hpNSC® for the treatment of ischemic stroke using a rodent model of the disease. In October 2016 we evaluated the use of ISC-hpNSC® for the treatment of TBI using a rodent model of the disease. As we have already developed safety data on NSC from the Parkinson's disease program we believe can leverage such data in a program for the treatment of ischemic stroke.

Each of these product candidates will require extensive preclinical and clinical development and may require specific unforeseen licensing rights obtained at substantial cost before any regulatory approval may be achieved and the products sold for therapeutic use.

Anti-Aging Skin Care Products

As of December 31, 2021, ISCO's LSC subsidiary had developed, launched and was actively selling eleven distinct skincare products.

- ProPlus Advanced Defense Complex
- ProPlus Advanced Recovery Complex
- ProPlus Eye Firming Complex
- ProPlus Neck Firming Complex
- ProPlus Advanced Aquoues Treatment
- ProPlus Collagen Booster (Advanced Molecular Serum)
- ProPlus Elastin Booster
- ProPlus Brightening Toner
- ProPlus Brightening Cleanser
- ProPlus Refresh Polishing Gelee
- ProPlus Dual Action Exfoliator

Research Products

ISCO's LCT subsidiary develops, manufactures and commercializes over 200 human cell culture products. These products include frozen human "primary" cells and stem cells and the reagents (called "media") needed to grow, maintain and differentiate the cells. LCT's scientists have used a technology called basal medium optimization to systematically produce optimized products designed to culture specific human cell types and to elicit specific cellular behaviors. These techniques also produce products that do not contain non-human animal proteins, a feature desirable to research and therapeutic markets. These human cell-based products are used domestically and internationally by research scientists in pharmaceutical, academic and government research organizations to study human disease and basic cell biology. LCT's products eliminate the need for scientists to create their own cells, media and reagents or attempt to adapt "off the shelf" products to match specific experimental needs and they are superior to using animals or non-human animal cells as research tools because they are more relevant to the study of human disease. Strict quality assurance provides a high level of consistency and standardization of these products. LCT offers products that contain no animal products ("called "Xeno-free" products), allowing researchers to have better control of their experiments and to conduct research using products that ultimately can be more appropriate for therapeutic applications.

Often LCT's research customers use our cell-based research products in their clinical research, eventually adapting them for therapeutic applications. If one of our research products is adopted by a successful producer of therapeutic cells, ISCO may become a supplier to the much larger therapeutic market through LCT's products. This is based on the fact that once regulatory product submissions are made to the FDA and similar authorities, the media and reagents used during development cannot be changed easily after approval. These uses of LCT's products bring opportunities to ISCO for future therapeutic products.

LCT products and applications include:

- Human skin cells and associated reagents for the study of skin disease, toxicology or wound healing.
- Human cells from the heart and blood vessels and associated reagents (VascuLife ®), used by researchers to study cardiovascular disease and cancer.
- Human bronchial and tracheal cell lines for the study of toxicity, cystic fibrosis, asthma and pathogenesis.
- Human mammary epithelial cell lines for the study of breast cancer, three dimensional culture and carcinogen screening.
- Adult stem cells (called mesenchymal stem cells) and the reagents necessary to differentiate them into various tissues, including bone, cartilage and fat. These products are valuable for researchers in the emerging field of regenerative medicine.
- Human prostate cells and specialized medium (ProstaLife™) to study prostate disease including cancer.
- Human renal and bladder cells and associated media (RenaLife™) to study renal and bladder diseases.

- Human corneal cells and associated media (OcuLife™) for the study of corneal disease and as a model of toxicology for consumer product testing.
- Human female reproductive system cells (ReproLife™) for the study of cellular physiology of the reproductive tract, cellular response to infectious agents and other areas of female reproductive system research.
- Human Skeletal Muscle Cells (StemLife Sk™) for the study of muscle cell biology, diabetes, insulin receptor studies, muscle metabolism, muscle tissue repair and myotube development.
- An assortment of many other cell culture reagents and supplements for the growth, staining and freezing of human cells.

Each LCT cell product is quality tested for the expression of specific markers (to assure the cells are the correct type), proliferation rate, viability, morphology and absence of pathogens. Each cell system also contains associated donor information and all informed consent requirements are strictly followed.

LCT's research products are marketed and sold by its internal sales force, LCT brand distributors in Europe and Asia and original equipment manufacturing (OEM) partners, which are then re-branded and sold with OEM partners' labels.

Our Markets

Therapeutic Markets

ISCO is currently pursuing a number of scientific development programs designed to lead to the creation of new therapeutic products. We anticipate that, with their superior immune-matching characteristics, our cells will be able to reduce or eliminate the need for immune-suppression drugs and the adverse reactions they trigger in patients.

Parkinson's disease. Parkinson's disease ("PD") is the second most common neurodegenerative disease. According to the Parkinson's Disease Foundation, there are more than one million sufferers in the United States with over $2 billion spent on related medication costs. Currently there is no cure for PD and the improvements in symptoms provided by available PD drugs often diminish with time. Using our proprietary technologies and know-how, we are creating neural stem cells from hpSCs as a potential treatment of PD and potentially other central nervous system disorders, including traumatic brain injury, in order to address this significant market opportunity.

Traumatic Brain Injury. Over 1.7 million people in North America suffer annually from traumatic brain injury, with associated medical costs exceeding $70 billion. According to the World Health Organization, the global incidence for traumatic brain injury is approximately 10 million people annually. According to the CDC, traumatic brain injury is a leading cause of death and disability in the United States, contributing to about 30% of all injury deaths.

Anti-Aging Cosmetic Market

Skin care products play a key role in the daily healthcare routines of many consumers. Greater emphasis on advertising, broader and more integrated distribution networks, raising standards of living in emerging markets, and population aging trends in developed nations are the major factors driving the global demand for skin care products.

The global skin care market is generally comprised of three categories of product -facial care, body care, and special needs products. Top selling products in the facial skincare category include skin brighteners, anti-aging creams and serums, toners, masks, anti-acne and sun protection products.

Facial skincare products that provide anti-aging benefits represent a significant portion of the global skincare market. Increased longevity leads consumers to seek out high quality, technologically advanced skincare products that can help them maintain a youthful appearance. Anti-aging products that are backed by scientific research remain in high demand among sophisticated consumers despite premium prices.

Research Market

The research market for cell systems consists of scientists performing basic and applied research in the biological sciences. Basic research involves the study of cell biology and biochemical pathways. Applied research involves drug discovery, vaccine development, clinical research and cell transplantation. The domestic market can be broken into three segments: (i) academic researchers in universities and privately-funded research organizations; (ii) government institutions such as the National Institutes of Health, the United States Army, the United States Environmental Protection Agency and others; and (iii) industrial organizations such as pharmaceutical companies and consumer product companies. It is estimated that the combined academic and government markets comprise approximately 40% of the total

market and that the industrial segment comprises approximately 60%. We believe the following are the main drivers in the research market for commercial cell systems:

- The need for experimental human cells which are more predictive of human biology than are non-human cells or genetically-modified cell lines or living non-human animals.
- The emerging field of stem-cell-based regenerative medicine and the increase in associated grant money to study stem cells is driving the market not only for stem cell products but also for cell culture products in general.
- The desire to lower the cost of drug development in the pharmaceutical industry. We believe that human cell systems may provide a platform for screening toxic drugs early in the development process, thus avoiding late stage failures in clinical trials and reducing costs.
- The need to eliminate animal products in research reagents that may contaminate future therapeutic products.
- The need for experimental control. Serum-free defined media provides the benefit of experimental control because there are fewer undefined components.
- The need for consistency in experiments that can be given by quality controlled products.
- The need to eliminate in-house formulation of media, obtain human tissue or perform cell isolation.
- The need to reduce animal testing in the consumer products industry.

Intellectual Property

Patents

In 2021 ISCO was issued one patent for technology generated by our R&D team. The patent, issued in Korea, covers the use of small molecule technology utilized in the Company's skin care product lines. As of December 31, 2021, we held a total of 38 patents. These patents expire from June 2025 through June 2036.

In addition, we have obtained exclusive worldwide licenses to patents and patent applications from Astellas Pharma. We believe that our licensed and internally-generated patents provide the intellectual property rights we need to operate in the pluripotent stem cell field and to progress through the stages of creating a therapeutic stem cell product. These stages include the derivation, isolation, expansion and differentiation of stem cells. The intellectual property available to us enables us to create manufacturing methods that eliminate animal proteins in order to satisfy FDA requirements. In addition, we have rights to sell research products derived through our licensed intellectual property in order to generate income.

The majority of the patents and applications have been filed in the US and in foreign countries through the Patent Cooperation Treaty or by direct country filings in those jurisdictions deemed significant to our operations.

We have protected our research products and branding through both patents and trademarks. Lifeline Skin Care has filed patent applications covering its proprietary core technologies and methods of using stem cells and targeted small molecules to create skin care products. LSC unique product formulas are protected as trade secrets. ISCO, LCT, and LSC have registered trademarks on their company names, logos and various product names to protect their branding investment. Lifeline Cell Technology's reagent formulations are protected as trade secrets.

The patentability of human cells in countries throughout the world reflects widely differing governmental attitudes. In the United States, hundreds of patents covering human embryonic stem cells have already been granted, including those on which we rely. Certain countries in Europe and Asia have taken the position that hES cells themselves are not patentable. ISCO believes that such restrictions are not appropriate as applied to parthenogenetic stem cells and is working with patent legislators in Europe to create exemptions for human parthenogenetic stem cells. As a result, we plan to file internationally wherever feasible and focus our research strategy on cells that best fit the US and foreign country definitions of patentable cells and technologies.

On December 18, 2014 the Court of Justice of the European Union (CJEU), the European Union's highest court ruled that the Company's core technology patent applications are not covered by the prohibition on patenting embryonic stem cells, removing the final barrier to the approval of ISCO's parthenogenetic stem cell patents in the European Union. This final and definitive ruling by the EU's highest court now formally separates parthenogenetic stem cells from embryonic stem cells, and removes the exclusion from patentability on the former while maintaining the ban on the later.

License Agreements

In May 2005, we entered into three exclusive license agreements ("ACT IP," "Infigen IP," and "UMass IP" or collectively "ACTC agreements") with Astellas Pharma Inc. ("Astellas") for the production of therapeutic products in the fields of diabetes, liver disease, retinal disease and the creation of research products in all fields. In February 2013, each of these license agreements was amended and restated, pursuant to which we continue to have rights to Astellas Pharma's human cell patent portfolio and non-exclusive rights to future developments in the area of diabetes and liver disease, as well as certain rights to patents covering Single Blastomere technology. A significant feature of the licensed Single Blastomere technology is a method of ethically obtaining human embryonic stem cells that allows us to isolate and differentiate hES stem cells directly from a "blastocyst" without harming the embryo. Using other licensed technology, the hES cells can be immediately differentiated into stem cells capable of expansion and differentiation into other types of cells. Under the terms of the amendments we have also acquired additional exclusive rights in the area of parthenogenesis and the use of parthenogenetically derived stem cells for treatment of human diseases.

The agreements with Astellas further provide that we are no longer obligated to make milestone payments or to meet any minimum research and development requirements. We will no longer pay any royalties related to the ACT IP or Infigen IP, and our obligation to pay a minimum license fee for the UMass IP has been reduced to $75 thousand annually, payable in two installments to Astellas.

The agreements continue until the expiration of the last valid claim within the licensed patent rights. Either party to each amended and restated license agreement may terminate the agreement for an uncured breach or we may terminate the agreements at any time with a 30-day written notice.

Research Agreements

ISCO actively pursues sponsored research agreements with local and international research organizations and has established research collaborations with collaborators from Yale University, University of South Florida, Tulane University, University of California, San Diego, The Scripps Research Institute (La Jolla), and the Sanford Burnham Preby Medical Discovery Institute. We are in frequent negotiations to develop collaborative research agreements with additional domestic and international research organizations from both the public and private sector. These agreements allow us to team up with nationally and internationally known research scientists to study stem cell technologies developed or licensed by ISCO for possible use in therapeutic or research fields. In addition to the research collaborations mentioned above, we provide our stem cell lines to researchers at many universities and other research facilities. Ordinarily, the stem cell lines are provided without charge, but we retain the right to either an exclusive or non-exclusive right to use any technology that may be developed that is necessary in order for us to make therapeutic products based on the research that uses our cells.

Competition

The development of therapeutic and diagnostic agents for human disease is intensely competitive. Pharmaceutical companies currently offer a number of pharmaceutical products to treat Parkinson's disease, diabetes, liver diseases, and other diseases for which our technologies may be applicable. Many pharmaceutical and biotechnology companies are investigating new drugs and therapeutic approaches for the same purposes, which may achieve new efficacy profiles, extend the therapeutic window for such products, alter the prognosis of these diseases, or prevent their onset. We believe that our therapeutic products, when and if successfully developed, will compete with these products principally on the basis of improved and extended efficacy and safety and their overall economic benefit to the health care system. We believe that our most significant competitors will be fully integrated pharmaceutical companies and more established biotechnology companies. Smaller companies may also be significant competitors, particularly through collaborative arrangements with large pharmaceutical or biotechnology companies.

Some of our primary competitors in the development of stem cell therapies are BioTime, SanBio, BlueRock Therapeutics, and ReNeuron. Our primary competitors in the skin care market are Obagi, ZO Skin Health, Skinceuticals, SkinMedica (now owned by Allergan), and Murad. In the field of research products, our primary competitors for human cells, media and reagents are Lonza, EMD Millipore, Life Technologies (now owned by Thermo Fisher Scientific), StemCell Technologies, Zen-bio, PromoCell, and Specialty Media. In each of these areas many of our competitors have substantially greater resources and experience than we do.

Sales and Marketing

To date, sales of our research products have been derived primarily through our in-house sales force and via OEM partners and LCT brand distributors in Europe and Asia. Approximately 39% of our total product sales in 2021 were from one customer.

LSC phased out its retail product line in 2019, with the exception of select cleanser products that were offered to both professional and retail customers. LSC is now offering its ProPLUS product line through its branded website — www.lifelineskincare.com, as well

as through a network of select online retailers and a limited number of professional accounts, such as dermatologists, and plastic surgeons. Domestically, we plan to increase distribution of our products through increasing brand awareness, strategic partnerships, and sales promotions.

Government Regulation

Regulation by governmental authorities in the United States and other countries is a significant factor in development, manufacture and marketing of our proposed therapeutic and skin care products and in our ongoing research and product development activities. The nature and extent to which such regulation applies to us will vary depending on the nature of any products that we may develop. We anticipate that many, if not all, of our proposed therapeutic products will require regulatory approval by governmental agencies prior to commercialization. In particular, human therapeutic products are subject to rigorous pre-clinical and clinical testing and other approval procedures of the FDA, and similar regulatory authorities in European and other countries. Various governmental statutes and regulations also govern or influence testing, manufacturing, safety, labeling, storage and recordkeeping related to such products and their marketing. The process of obtaining these approvals and the subsequent compliance with appropriate statutes and regulations require the expenditure of substantial time and money, and there can be no guarantee that approvals will be granted.

We have made extensive progress in obtaining the necessary regulatory approvals of research protocols, informed consent documents and donor protection procedures to obtain oocytes in the United States for the production of our parthenogenetic stem cell bank. These approvals include: federally mandated Institutional Review Board (IRB) and State of California required Stem Cell Research Oversight (SCRO) committee.

FDA Approval Process

Prior to commencement of clinical studies involving humans, pre-clinical testing of new pharmaceutical products is generally conducted on animals in the laboratory to evaluate the potential efficacy and safety of the product candidate. The results of these studies are submitted to the FDA as a part of an Investigational New Drug ("IND") application, which must become effective before clinical testing in humans can begin. Typically, human clinical evaluation involves a time-consuming and costly three-phase process. In Phase I, clinical trials are conducted with a small number of people to establish safety pattern of drug distribution and metabolism within the body. In Phase II, clinical trials are conducted with groups of patients afflicted with a specific disease in order to determine preliminary efficacy, possible dosages and expanded evidence of safety. In some cases, an initial trial is conducted in diseased patients to assess both preliminary efficacy and preliminary safety and patterns of drug metabolism and distribution, in which case it is referred to as a Phase I/II trial. In Phase III, large-scale, multi-center, comparative trials are conducted with patients afflicted with a target disease in order to provide enough data to demonstrate the efficacy and safety required by the FDA. The FDA closely monitors the progress of each of the three phases of clinical testing; and may, at its discretion, re-evaluate, alter, suspend or terminate the testing based upon the data which have been accumulated to that point and its assessment of the risk/benefit ratio to the patient. Monitoring of all aspects of the study to minimize risks is a continuing process. All adverse events must be reported to the FDA.

The results of the pre-clinical and clinical testing on a non-biologic drug and certain diagnostic drugs are submitted to the FDA in the form of a New Drug Application ("NDA") for approval prior to commencement of commercial sales. In the case of vaccines or gene and cell therapies, the results of clinical trials are submitted as a Biologics License Application ("BLA"). In responding to a NDA or BLA, the FDA may grant marketing approval, request additional information or refuse to approve if the FDA determines that the application does not satisfy its regulatory approval criteria. There can be no assurance that approvals will be granted on a timely basis, if at all, for any of our proposed products.

In November 2014, in an important ruling the FDA cleared ISCO's human parthenogenetic stem cells line for investigational clinical use. This was a necessary step in the process of eventually advancing stem cell therapies based on ISCO's core technology into clinical development. Although the Phase I trial for the Parkinson's Disease program is anticipated to be conducted in Australia, and therefore not subject to FDA oversight, any future studies will likely be carried out in the United States where this approval is necessary.

In recognition of the challenges that accompany development of cellular therapy (CT) products, the FDA has recently initiated an expedited review and approval process for promising investigational CTs. The first step in the pathway is submission of a request for Regenerative Medicine Advanced Therapy (RMAT) designation by the sponsor to the FDA, either at the same time as the initial IND filing or by amendment to an active IND (prior to the end-of-phase 2 meeting). Upon grant of RMAT designation by the FDA, the sponsor receives access to a number of benefits, the most advantageous of which is early interactions with senior FDA managers for the purpose of discussing potential surrogate or intermediate clinical endpoints to support accelerated approval requirements. Consideration for accelerated approval, heretofore unavailable to regenerative medicine products, represents a major regulatory advance because it would enable ISCO to market ISC-hpNSC earlier than would be possible through the traditional approval process.

European and Other Regulatory Approval

Whether or not FDA approval has been obtained, approval of a product by comparable regulatory authorities in Europe and other countries will likely be necessary prior to commencement of marketing the product in such countries. The regulatory authorities in each country may impose their own requirements and may refuse to grant an approval, or may require additional data before granting it, even though the relevant product has been approved by the FDA or another authority. As with the FDA, the regulatory authorities in the European Union ("EU"), Australia and other developed countries have lengthy approval processes for pharmaceutical products. The process for gaining approval in particular countries varies, but generally follows a similar sequence to that described for FDA approval. In Europe, the European Committee for Proprietary Medicinal Products provides a mechanism for EU-member states to exchange information on all aspects of product licensing. The EU has established a European agency for the evaluation of medical products, with both a centralized community procedure and a decentralized procedure, the latter being based on the principle of licensing within one member country followed by mutual recognition by the other member countries.

In Australia, the approval process for commencing Phase 1 and 2 clinical trials resides with Therapeutic Goods Administration (TGA) and the Human Research Ethics Committee, (HREC). Prior to commencing a clinical trial, a sponsor must submit to TGA a CTX or CTN application and must submit to the HREC a study protocol, an investigator brochure and a template informed consent for such clinical trial. The HREC approval process generally takes four to eight weeks.

Other Regulations

We are also subject to various United States federal, state, local and international laws, regulations and recommendations relating to the treatment of oocyte donors, the manufacturing environment under which human cells for therapy are derived, safe working conditions, laboratory and manufacturing practices and the use and disposal of hazardous or potentially hazardous substances, including radioactive compounds and infectious disease agents, used in connection with our research work. We cannot accurately predict the extent of government regulation which might result from future legislation or administrative action.

Other Regulations for Lifeline Skin Care

The Federal Food, Drug and Cosmetic Act ("FFDCA") and the Fair Packaging and Labeling Act ("FPLA") provide the regulatory framework for selling cosmetics. The FFDCA oversees the safety of cosmetics. The FPLA ensures that the labeling is not false or misleading and includes all relevant information in a prominent and conspicuous manner.

Safety and efficacy testing of the products is performed by independent third party testing organization.

Information about our Executive Officers

For information concerning our executive officers, see Part III, Item 10 of this Annual Report on Form 10-K.

Human Capital

As of December 31, 2021, including our 3 executive officers, we had 29 full-time employees. None of our employees are represented by labor unions or covered by collective bargaining agreements.

The Company considers its diverse and innovative workforce to be one of its most valuable resources. In recognition of our employees' contributions to the Company's business objectives and long-term research and business success, we strive to provide a dynamic, safe, and inclusive work environment that enables each employee to develop professionally as part of the team, as well as be rewarded for individual initiative. In order to achieve this goal, we focus on the following aspects of human capital management:

Corporate Values and Ethics

The key elements of our corporate value system are described in our Code of Business Conduct Policy (the "Business Code"), which provides uniform guidance to all our employees regarding expectations for proper workplace behavior and ethical decision making. Our Board of Directors adopted and regularly reviews the Code of Business Conduct, which applies to all of our employees, officers and directors of the Company.

The values outlined in the Business Code, including personal honesty, professional integrity, and organizational transparency, are vital to achieving our business and research objectives, as well as to serving our stakeholders. We have established a reporting hotline that enables employees to file anonymous reports of any suspected violations of the Business Code or other policies.

Workplace Diversity and Inclusion

As a truly international team, we value and celebrate unique talents, backgrounds and perspectives each employee contributes to achieving our corporate and research objectives. As an equal opportunity employer, we strive to ensure we evaluate a diverse group of candidates for every role with the goal of identifying the best possible candidates to fill open positions within the Company.

Compensation & Benefits

Our compensation and benefits programs, with oversight from the Compensation Committee of our Board of Directors, are designed to attract, retain and reward employees through competitive salaries, incentive bonus and stock option grant eligibility, a 401(k) Plan, healthcare and insurance benefits, paid time off, family leave, and employee assistance programs.

Item 1A. RISK FACTORS

You should carefully consider the risks described below as well as other information provided to you in this document, including information in the section of this document entitled "Forward Looking Statements". If any of the following risks actually occur, our business, financial condition or results of operations could be materially adversely affected, the value of our common stock could decline, and you may lose all or part of your investment.

Risks Related to Our Business

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

The outbreak of the coronavirus, COVID-19, which has been declared by the World Health Organization to be a pandemic has spread across the globe and is impacting worldwide economic activity. A pandemic, including COVID-19 or other public health epidemic, poses the risk that we or our employees, contractors, customers, suppliers, third party shipping carriers, government and other partners may be prevented from or limited in their ability to conduct business activities for an indefinite period of time, including due to the spread of the disease within these groups or due to shutdowns that may be requested or mandated by governmental authorities. The impact that COVID-19 could have on our business, the continued spread of COVID-19 and the measures taken by the governments of states and countries affected could disrupt, among other things, the supply chain and the manufacture or shipment of our products. Our laboratory operations, including laboratory employees, may be subject to closure or shut down due to the spread of the disease within these individuals, or as part of a larger scale government recommendation or mandate. Any disruption in our laboratory operations would have a material adverse effect on our business and would impede our ability to manufacture and ship products to our customers in a timely manner, or at all. Additionally, the demand for our skincare products may continue to significantly decline as COVID-19 continues to spread, including as a result of prioritization of customer financial resources toward essential household items or government-imposed quarantines that impede the ability of our customers to purchase our professional skincare product line through spas and medical offices that may not be considered essential businesses and are mandated to close for an indefinite amount of time. The occurrence of any of the foregoing events could have a material adverse effect on our business, financial condition and results of operations. The COVID-19 outbreak and mitigation measures have had and may continue to have an adverse impact on global economic conditions which could have an adverse effect on our business and financial condition. The extent to which the COVID-19 outbreak continues to affect our results will depend on future developments that are highly uncertain and cannot be predicted, including new information that may emerge concerning the severity of the virus and the actions to contain its impact.

Our business is at an early stage of development and we may not develop therapeutic products that can be commercialized.

Our business is at an early stage of development. We do not have any products in late stage clinical trials. We are still in the early stages of identifying and conducting research on potential therapeutic products. Our potential therapeutic products will require significant research and development and pre-clinical and clinical testing prior to regulatory approval in the United States and other countries. We may not be able to obtain regulatory approvals, enter new and later stage clinical trials for any of our product candidates, or commercialize any products. Our product candidates may prove to have undesirable and unintended side effects or other characteristics adversely affecting their safety, efficacy or cost effectiveness that could prevent or limit their use. Any product using any of our technology may fail to provide the intended therapeutic benefits, or achieve therapeutic benefits equal to or better than the standard of treatment at the time of testing or production.

We have a history of operating losses, do not expect to be profitable in the near future.

We have not generated any profits since our entry into the biotechnology business and have incurred significant operating losses. We expect to incur additional operating losses for the foreseeable future and we expect our operating losses to increase significantly. Our commercial businesses have not generated revenues in amounts to support our research and development efforts, and we may not achieve that level of revenues in the foreseeable future.

We have expended substantial funds to develop our technologies, products and product candidates. Based on our financial condition, recurring losses and projected spending, which raise substantial doubt about our ability to continue as a going concern. If we were unable to continue as a going concern, the values we receive for our assets on liquidation or dissolution could be significantly lower than the values reflected in our consolidated financial statements.

We will need additional capital to conduct our operations and develop our products and our ability to obtain the necessary funding is uncertain.

During the year ended December 31, 2021, we used a significant amount of cash to finance our continued operations, and we need to obtain significant additional capital resources in order to develop products going forward. We may not be successful in maintaining

our normal operating cash flow and the timing of our capital expenditures may not result in cash flows sufficient to sustain our operations through the next twelve months. If financing is not sufficient and additional financing is not available or available only on terms that are detrimental to our long-term survival, it could have a major adverse effect on our ability to pursue our clinical research and product development programs, and could ultimately affect our ability to continue to function. The timing and degree of any future capital requirements will depend on many factors, including:

- the accuracy of the assumptions underlying the estimates for capital needs in 2022 and beyond;
- the extent that revenues from sales of LSC and LCT products cover the related costs and provide capital;
- scientific progress in our research and development programs;
- the magnitude and scope of our research and development programs and our ability to establish, enforce and maintain strategic arrangements for research, development, clinical testing, manufacturing and marketing;
- our progress with pre-clinical development and clinical trials;
- the extent to which third party interest in Company's research and commercial products can be realized through effective partnerships;
- the time and costs involved in obtaining regulatory approvals;
- the costs involved in preparing, filing, prosecuting, maintaining, defending and enforcing patent claims;
- the number and type of product candidates that we pursue; and
- the development of major public health concerns, including the novel coronavirus outbreak or other pandemics arising globally, and the current and future impact of it and COVID-19 on our business operations and funding requirements.

Additional financing through strategic collaborations, public or private equity or debt financings or other financing sources may not be available on acceptable terms, or at all. Additional equity financing could result in significant dilution to our stockholders, and any debt financings will likely involve covenants restricting our business activities. Additional financing may not be available on acceptable terms, or at all. Further, if we obtain additional funds through arrangements with collaborative partners, these arrangements may require us to relinquish rights to some of our technologies, product candidates or products that we might otherwise seek to develop and commercialize on our own. If sufficient capital is not available, we may be required to delay, reduce the scope of or eliminate one or more of our research or product development initiatives, any of which could have a material adverse effect on our financial condition or business prospects.

We have limited clinical testing and regulatory capabilities, and human clinical trials are subject to extensive regulatory requirements, very expensive, time-consuming and difficult to design and implement. Our products may fail to achieve necessary safety and efficacy endpoints during clinical trials, which may limit our ability to generate revenues from therapeutic products.

Due to the relatively early stage of our therapeutic products and stem cell therapy-based systems, we have not yet invested significantly in internal clinical testing and regulatory capabilities, including for human clinical trials. We cannot assure you that we will be able to invest or develop resources for these capabilities successfully or as expediently as necessary. In particular, human clinical trials can be very expensive and difficult to design and implement, in part because they are subject to rigorous regulatory requirements. The clinical trial process is time consuming. We estimate that clinical trials of our product candidates will take at least several years to complete. Furthermore, failure can occur at any stage of the trials, and we could encounter problems that cause us to abandon or repeat clinical trials. The commencement and completion of clinical trials may be affected by several factors, including:

- unforeseen safety issues;
- determination of dosing issues;
- inability to demonstrate effectiveness during clinical trials;
- slower than expected rates of patient recruitment;
- inability to monitor patients adequately during or after treatment;
- competitive developments, including changes in the standard of care treatment for an indication;
- inability or unwillingness of medical investigators to follow our clinical protocols; and

- developments related to the coronavirus outbreak and impact of it and COVID-19 on the costs and timing associated with the conduct of our clinical trials and other related activities.

In addition, we or the FDA (or other applicable regulatory agency) may suspend our clinical trials at any time if it appears that we are exposing participants to unacceptable health risks or if the FDA or other regulatory agency finds deficiencies in our submissions or the conduct of these trials.

Patents held by other persons may result in infringement claims against us that are costly to defend and which may limit our ability to use the disputed technologies and prevent us from pursuing research and development or commercialization of potential products.

A number of pharmaceutical, biotechnology and other companies, universities and research institutions have filed patent applications or have been issued patents relating to cell therapy, stem cells, and other technologies potentially relevant to or required by our expected products. We cannot predict which, if any, of such applications will issue as patents or the claims that might be allowed. We are aware that a number of companies have filed applications relating to stem cells. We are also aware of a number of patent applications and patents claiming use of stem cells and other modified cells to treat disease, disorder or injury.

If third party patents or patent applications contain claims infringed by either our licensed technology or other technology required to make and use our potential products and such claims are ultimately determined to be valid, we might not be able to obtain licenses to these patents at a reasonable cost, if at all, or be able to develop or obtain alternative technology. If we are unable to obtain such licenses at a reasonable cost, we may not be able to develop some products commercially. We may be required to defend ourselves in court against allegations of infringement of third party patents. Patent litigation is very expensive and could consume substantial resources and create significant uncertainties. An adverse outcome in such a suit could subject us to significant liabilities to third parties, require disputed rights to be licensed from third parties, or require us to cease using such technology.

The outcome of pre-clinical, clinical and product testing of our products is uncertain, and if we are unable to satisfactorily complete such testing, or if such testing yields unsatisfactory results, we may be unable to sell our proposed products.

Before obtaining regulatory approvals for the commercial sale of any potential human products, our products will be subjected to extensive pre-clinical and clinical testing to demonstrate their safety and efficacy in humans. The clinical trials of our prospective products, or those of our licensees or collaborators, may not demonstrate the safety and efficacy of such products at all, or to the extent necessary to obtain appropriate regulatory approvals. Similarly, the testing of such prospective products may not be completed in a timely manner, if at all, or only after significant increases in costs, program delays or both, all of which could harm our ability to generate revenues. In addition, our prospective products may not prove to be more effective for treating disease or injury than current therapies. Accordingly, we may have to delay or abandon efforts to research, develop or obtain regulatory approval to market our prospective products. The failure to adequately demonstrate the safety and efficacy of a therapeutic product under development could delay or prevent regulatory approval of the product and could harm our ability to generate revenues, operate profitably or produce any return on an investment in us.

Even if we are successful in developing a therapeutic application using our cell technologies, it is unclear whether cell therapy can serve as the foundation for a commercially viable and profitable business.

Stem cell technology is rapidly developing and could undergo significant change in the future. Such rapid technological development could result in our technologies becoming obsolete. While our product candidates appear promising, they may fail to be successfully commercialized for numerous reasons, including, but not limited to, competing technologies for the same indications. There can be no assurance that we will be able to develop a commercially successful therapeutic application for our stem cell technologies.

Moreover, advances in other treatment methods or in disease prevention techniques could significantly reduce or entirely eliminate the need for our cell therapy services, planned products and therapeutic efforts. There is no assurance that cell therapies will achieve the degree of success envisioned by us in the treatment of disease. Additionally, technological or medical developments may materially alter the commercial viability of our technology or services and require us to incur significant costs to replace or modify programs in which we have a substantial investment. We are focused on cell therapy, and if this field is substantially unsuccessful, this could jeopardize our success or future results. The occurrence of any of these factors may have a material adverse effect on our business, operating results and financial condition.

Our competition includes fully integrated biotechnology and pharmaceutical companies that have significant advantages over us.

The market for therapeutic stem cell products is highly competitive. We expect that our most significant competitors will be fully integrated and more established pharmaceutical and biotechnology companies. These companies are developing stem cell-based products and they have significantly greater capital resources and research and development, manufacturing, testing, regulatory

compliance, and marketing capabilities. Many of these potential competitors are further along in the process of pharmaceutical product development and also operate large, company-funded research and development programs. As a result, our competitors may develop more competitive or affordable products, or achieve earlier patent protection or product commercialization than we are able to achieve. Competitive products may render any products or product candidates that we develop uneconomic or obsolete.

If competitors develop and market products that are more effective, safer, or less expensive than our product candidates or offer other advantages, our commercial prospects will be limited.

Our cell therapy development programs face, and will continue to face, intense competition from pharmaceutical, biopharmaceutical and biotechnology companies, as well as numerous academic and research institutions and governmental agencies engaged in drug discovery activities or funding, both in the United States and abroad. Some of these competitors are pursuing the development of drugs and other therapies that target the same diseases and conditions that we are targeting with our product candidates.

As a general matter, we also face competition from many companies that are researching and developing cell therapies. Many of these companies have financial and other resources substantially greater than ours. In addition, many of these competitors have significantly greater experience in testing pharmaceutical and other therapeutic products, obtaining FDA and other regulatory approvals, and marketing and selling. If we ultimately obtain regulatory approval for any of our product candidates, we also will be competing with respect to manufacturing efficiency and marketing capabilities, areas in which we have limited or no commercial-scale experience. Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated by our competitors. Competition may increase further as a result of advances made in the commercial applicability of our technologies and greater availability of capital for investment in these fields.

Restrictive and extensive government regulation could slow or hinder our production of a cellular product.

The research and development of stem cell therapies is subject to and restricted by extensive regulation by governmental authorities in the United States and other countries. The process of obtaining FDA and other necessary regulatory approvals is lengthy, expensive and uncertain. We may fail to obtain the necessary approvals to continue our research and development, which would hinder our ability to manufacture or market any future product.

The development and commercialization of our product candidates is subject to extensive regulation by the FDA and other regulatory agencies in the United States and abroad, and the failure to receive regulatory approvals for our product candidates would likely have a material and adverse effect on our business and prospects.

The process of obtaining FDA and other regulatory approvals is expensive, generally takes many years and is subject to numerous risks and uncertainties, particularly with complex and/or novel product candidates such as our product candidates. Changes in regulatory approval policies during the development period, changes in or the enactment of additional statutes or regulations, or changes in regulatory review for each submitted product application, may cause delays in the approval or rejection of an application or may make it easier for our competitors to gain regulatory approval to enter the marketplace. Ultimately, the FDA and other regulatory agencies have substantial discretion in the approval process and may refuse to accept any application or may decide that our product candidate data are insufficient for approval without the submission of additional pre-clinical, clinical or other studies. In addition, varying agency interpretations of the data obtained from pre-clinical and clinical testing could delay, limit or prevent regulatory approval of a product candidate. Any regulatory approval we ultimately obtain may be limited or subject to restrictions or post-approval commitments that render the approved product not commercially viable.

Any of the following factors, among others, could cause regulatory approval for our product candidates to be delayed, limited or denied:

- the product candidates require significant clinical testing to demonstrate safety and effectiveness before applications for marketing approval can be filed with the FDA and other regulatory authorities;
- data obtained from pre-clinical and nonclinical animal testing and clinical trials can be interpreted in different ways, and regulatory authorities may not agree with our respective interpretations or may require us to conduct additional testing;
- negative or inconclusive results or the occurrence of serious or unexpected adverse events during a clinical trial could cause us to delay or terminate development efforts for a product candidate; and/or
- FDA and other regulatory authorities may require expansion of the size and scope of the clinical trials;
- a pandemic, epidemic or outbreak of a contagious disease, such as the ongoing global pandemic of the novel coronavirus COVID-19 may refocus the FDA and other regulatory authorities to clinical trials that are of the utmost need.

Any difficulties or failures that we encounter in securing regulatory approval for our product candidates would likely have a substantial adverse impact on our ability to generate product sales, and could make any search for a collaborative partner more difficult.

Research in the field of embryonic stem cells is currently subject to strict government regulations, and our operations could be restricted or outlawed by any legislative or administrative efforts impacting the use of nuclear transfer technology or human embryonic material.

Significant portions of our business are focused on human cell therapy, which includes the production of human differentiated cells from stem cells and involves human oocytes. Although our focus is on parthenogenetic stem cells derived from unfertilized oocytes, certain aspects of that work may involve the use of embryonic stem cells. Research utilizing embryonic stem cells is controversial, and currently subject to intense scrutiny, particularly in the area of the use of human embryonic material.

Federal law is not as restrictive regarding the use of federal funds for human embryonic cell research, commonly referred to as hES cell research as it once was. However, federal law does prohibit federal funding for creation of parthenogenetic stem cells. Our operations may also be restricted by future legislative or administrative efforts by politicians or groups opposed to the development of hES cell technology, parthenogenetic cell technology or nuclear transfer technology. Further, future legislative or administrative restrictions could, directly or indirectly, delay, limit or prevent the use of hES technology, parthenogenetic technology, or nuclear transfer technology, the use of human embryonic material, or the sale, manufacture or use of products or services derived from nuclear transfer technology or hES or parthenogenetic technology.

We may be unsuccessful in our efforts to comply with applicable federal, state and international laws and regulations, which could result in loss of licensure, certification or accreditation or other government enforcement actions or impact our ability to secure regulatory approval of our product candidates.

Although we seek to conduct our business in compliance with applicable governmental healthcare laws and regulations, these laws and regulations are exceedingly complex and often subject to varying interpretations. The cell therapy industry is the topic of significant government interest, and thus the laws and regulations applicable to our business are subject to frequent change and/or reinterpretation. As such, there can be no assurance that we will be able, or will have the resources, to maintain compliance with all such healthcare laws and regulations. Failure to comply with such healthcare laws and regulations, as well as the costs associated with such compliance or with enforcement of such healthcare laws and regulations, may have a material adverse effect on our operations or may require restructuring of our operations or impair our ability to operate profitably.

Our manufacture of certain cellular therapy products triggers additional FDA requirements applicable to hESCs which are regulated as a drug, biological product, or medical device. FDA's GMP regulations govern the manufacture, processing, packaging and holding of cell therapy products regulated as drugs. FDA's Quality System Regulation, or QSR, similarly governs the manufacture, processing, packaging and holding of cell therapy products regulated as medical devices. We must comply with GMP or QSR requirements including quality control, quality assurance and the maintenance of records and documentation for certain products. We may be unable to comply with these GMP or QSR requirements and with other FDA, state and foreign regulatory requirements. These requirements may change over time and we or third-party manufacturers may be unable to comply with the revised requirements.

We will continue to be subject to extensive FDA regulation following any product approvals, and if we fail to comply with these regulations, we may suffer a significant setback in our business.

Even if we are successful in obtaining regulatory approval of our product candidates, we will continue to be subject to the requirements of and review by, the FDA and comparable regulatory authorities in the areas of manufacturing processes, post-approval clinical data, adverse event reporting, labeling, advertising and promotional activities, among other things. In addition, any marketing approval we receive may be limited in terms of the approved product indication or require costly post-marketing testing and surveillance. Discovery after approval of previously unknown problems with a product, manufacturer or manufacturing process, or a failure to comply with regulatory requirements, may result in actions such as:

- warning letters or other actions requiring changes in product manufacturing processes or restrictions on product marketing or distribution;
- product recalls or seizures or the temporary or permanent withdrawal of a product from the market; and
- fines, restitution or disgorgement of profits or revenue, the imposition of civil penalties or criminal prosecution.

The occurrence of any of these actions would likely cause a material adverse effect on our business, financial condition and results of operations.

Health care companies have been the subjects of federal and state investigations, and we could become subject to investigations in the future.

Both federal and state government agencies have heightened civil and criminal enforcement efforts. There are numerous ongoing investigations of health care companies, as well as their executives and managers. In addition, amendments to the Federal False Claims Act, have made it easier for private parties to bring "*qui tam*" (whistleblower) lawsuits against companies under which the whistleblower may be entitled to receive a percentage of any money paid to the government. The Federal False Claims Act provides, in part, that an action can be brought against any person or entity that has knowingly presented, or caused to be presented, a false or fraudulent request for payment from the federal government, or who has made a false statement or used a false record to get a claim approved. The government has taken the position that claims presented in violation of the federal anti-kickback law, Stark Law or other healthcare-related laws, including laws enforced by the FDA, may be considered a violation of the Federal False Claims Act. Penalties include substantial fines for each false claim, plus three times the amount of damages that the federal government sustained because of the act of that person or entity and/or exclusion from the Medicare program. In addition, a majority of states have adopted similar state whistleblower and false claims provision. Any future investigations of our business or executives could cause us to incur substantial costs, and result in significant liabilities or penalties, as well as damage to our reputation.

Restrictions on the use of human stem cells, and the ethical, legal and social implications of that research, could prevent us from developing or gaining acceptance for commercially viable products in these areas.

Although our stem cells are derived from unfertilized human eggs through a process called "parthenogenesis" that can produce cells suitable for therapy, but are believed to be incapable of producing a human being, such cells are nevertheless often incorrectly referred to as "embryonic" stem cells. Because the use of human embryonic stem cells gives rise to ethical, legal and social issues regarding the appropriate use of these cells, our research related to human parthenogenetic stem cells could become the subject of adverse commentary or publicity and some political and religious groups may still raise opposition to our technology and practices. In addition, many research institutions, including some of our scientific collaborators, have adopted policies regarding the ethical use of human embryonic tissue, which, if applied to our procedures, may have the effect of limiting the scope of research conducted using our stem cells, thereby impairing our ability to conduct research in this field. In some states, use of embryos as a source of stem cells is prohibited.

To the extent we utilize governmental grants in the future, the governmental entities involved may retain certain rights in technology that we develop using such grant money and we may lose the revenues from such technology if we do not commercialize and utilize the technology pursuant to established government guidelines.

Certain of our licensors' research have been or are being funded in part by government grants. Our research may also be government-funded in the future. In connection with certain grants, the governmental entity involved retains various rights in the technology developed with the grant. These rights could restrict our ability to fully capitalize upon the value of this research by reducing total revenues that might otherwise be available since such governmental rights may give the government the right to practice the invention without payment of royalties if we do not comply with applicable requirements.

We rely on parthenogenesis, cell differentiation and other stem cell technologies that we may not be able to successfully develop, which may prevent us from generating revenues, operating profitably or providing investors any return on their investment.

We have concentrated our research on our parthenogenesis, cell differentiation and stem cell technologies, and our ability to operate profitably will depend on being able to successfully implement or develop these technologies for human applications. These are emerging technologies with, as yet, limited human applications. We cannot guarantee that we will be able to successfully implement or develop our nuclear transfer, parthenogenesis, cell differentiation and other stem cell technologies or that these technologies will result in products or services with any significant commercial utility. We anticipate that the commercial sale of such products or services, and royalty/licensing fees related to our technology, would be an additional source of revenues.

If we are unable to keep up with rapid technological changes in our field or compete effectively, we will be unable to operate profitably.

We are engaged in activities in the biotechnology field, which is characterized by extensive research efforts and rapid technological progress. If we fail to anticipate or respond adequately to technological developments, our ability to operate profitably could suffer. Research and discoveries by other biotechnology, agricultural, pharmaceutical or other companies may render our technologies or potential products or services uneconomical or result in products superior to those we develop. Similarly, any technologies, products or services we develop may not be preferred to any existing or newly developed technologies, products or services.

We may not be able to protect our proprietary technology, which could harm our ability to operate profitably.

The biotechnology, cosmetic, and pharmaceutical industries place considerable importance on obtaining patent and trade secret protection for new technologies, products and processes. Our success will depend, to a substantial degree, on our ability to obtain and enforce patent protection for our products, preserve any trade secrets and operate without infringing the proprietary rights of others. We cannot assure you that:

- we will succeed in obtaining any patents, obtain them in a timely manner, or that the breadth or degree of protection that any such patents will protect our interests;
- the use of our technology will not infringe on the proprietary rights of others;
- patent applications relating to our potential products or technologies will result in the issuance of any patents or that, if issued, such patents will afford adequate protection to us or will not be challenged, invalidated or infringed; or
- patents will not be issued to other parties, which may be infringed by our potential products or technologies.

We are aware of certain patents that have been granted to others and certain patent applications that have been filed by others with respect to nuclear transfer and other stem cell technologies. The fields in which we operate have been characterized by significant efforts by competitors to establish dominant or blocking patent rights to gain a competitive advantage, and by considerable differences of opinion as to the value and legal legitimacy of competitors' purported patent rights and the technologies they actually utilize in their businesses.

Considerable research in the areas of stem cells, cell therapeutics and regenerative medicine is being performed in countries outside of the United States, and a number of our competitors are located in those countries. The laws protecting intellectual property in some of those countries may not provide adequate protection to prevent our competitors from misappropriating our intellectual property.

Our business is highly dependent upon maintaining licenses with respect to key technology.

Although our primary focus relates to intellectual property we have developed internally, some of the patents we utilize are licensed to us by Astellas Pharma, which has licensed some of these from other parties, including the University of Massachusetts ("UMass"). These licenses are subject to termination under certain circumstances (including, for example, our failure to make minimum royalty payments). The restriction or loss of any of such licenses, or the conversion of such licenses to non-exclusive licenses, could adversely affect our operations and/or enhance the prospects of our competitors.

Although our licenses with Astellas allow us to cure any defaults under the underlying licenses to them and to take over the patents and patents pending in the event of default by Astellas, the cost of such remedies could be significant and we might be unable to adequately maintain these patent positions. If so, such inability could have a material adverse effect on our business. Some of these licenses also contain restrictions (e.g., limitations on our ability to grant sublicenses) that could materially interfere with our ability to generate revenue through collaborative relationships or other transactions that involve the licensing or sale to third parties of important and valuable technologies that we have, for strategic reasons, elected not to pursue directly. In the future we may require further licenses to complete and/or commercialize our proposed products. We may not be able to acquire any such licenses on a commercially-viable basis.

We have experienced in the past and may experience in the future network or system failures, or service interruptions, including cybersecurity attacks, or other technology risks. Our inability to protect our systems and data against such risks could harm our business and reputation.

Our ability to provide uninterrupted and high levels of service depends upon the performance of our internal network, systems and related infrastructure, and those of our third-party vendors. Any significant interruptions in, or degradation of, the quality of the services, including infrastructure storage and support, that these third parties provide to us could severely harm our business and reputation and lead to the loss of customers and revenue. Our internal network, systems, and related infrastructure, in addition to the networks, systems, and related infrastructure of our third-party technology vendors, may be vulnerable to computer viruses and other malware that infiltrate such systems and networks, as well as physical or electronic security breaches, natural disasters, and similar disruptions. They have been and may continue to be the target of attempts to identify and exploit network and system vulnerabilities, penetrate or bypass security measures in order to interrupt or degrade the quality of the services we receive or provide, or otherwise gain unauthorized access to our networks and systems or those of our third-party vendors. These vulnerabilities or other attempts at access may result from, or be caused by, human error or technology failures, however, they may also be the product of malicious actions by third parties intending to harm our business. The methods that may be used by these third parties to cause interruptions or failures or to obtain unauthorized access to information change frequently, are difficult to detect, evolve rapidly, and are increasingly sophisticated and hard to defend against.

Although we have not incurred material losses or liabilities as a result of security breaches or attempted security breaches and continue to invest in security measures, we cannot be certain that our defensive measures, and those employed by our third-party vendors, will be sufficient to defend against all such current and future methods.

Our careful vetting of third parties to provide technology services and the contractual requirements related to the security that we impose on our third-party vendors who have access to this data may not be sufficient to protect us from network or system failures or service interruptions.

Any actual or perceived security breach, whether experienced by us or a third-party vendor; the reporting or announcement of such an event, or reports of perceived security vulnerabilities of our systems or the systems of our third-party service providers whether accurate or not; or our failure or perceived failure to respond or remediate an event or make adequate or timely disclosures to the public, regulatory or law enforcement agencies following any such event may be material and lead to harm to our financial condition, business reputation, and prospects of future business due to, among other factors: loss of customer confidence arising from interruptions or outages, delays, failure to meet contractual obligations, and loss of data or public release of confidential data; increase regulatory scrutiny on us; compromise our trade secret and intellectual property; expose us to costly uninsured liabilities such as material fines, penalties, liquidated damages, and overall margin compression due to renegotiation of contracts on less favorable terms or loss of business; liability for claims relating to misuse of personal information in violation of contractual obligations or data privacy laws; and potential theft of our intellectual property.

A security breach could occur and persist for an extended period of time without detection. We expect that any investigation of a security breach could take a substantial amount of time, and during such time we may not necessarily know the extent of the harm or how best to remediate it, and certain errors or actions could be repeated or compounded before they are discovered and remediated, all of which could further increase the costs and consequences of such a breach. Further, detecting and remediating such incidents may require specialized expertise and there can be no assurance that we will be able to retain or hire individuals who possess, or otherwise internally develop, such expertise. Our remediation efforts therefore may not be successful. The inability to implement, maintain, and upgrade adequate safeguards could have a material and adverse impact on our business, financial condition and results of operations. Moreover, there could be public announcements regarding any data security-related incidents and any steps we take to respond to or remediate such incidents.

The occurrence of any such failure may also subject us to costly lawsuits, claims for contractual indemnities, as well as divert valuable management, research and development, information technology, and marketing resources toward addressing these issues and delay our ability to achieve our strategic initiatives. In addition, we gather, as permitted by law, non-public, personally-identifiable financial information from customers, such as names, addresses, telephone numbers, bank and credit card account numbers and financial transaction information, and the compromise of such data, which may subject us to fines and other related costs of remediation.

Certain of our technology may not be subject to protection through patents, which leaves us vulnerable to theft of our technology.

Certain parts of our know-how and technology are not patentable or are trade secrets. To protect our proprietary position in such know-how and technology, we intend to require all employees, consultants, advisors and collaborators to enter into confidentiality and invention ownership agreements with us. These agreements may not provide meaningful protection for our trade secrets, know-how or other proprietary information in the event of any unauthorized use or disclosure. Further, in the absence of patent protection, competitors who independently develop substantially equivalent technology may harm our business.

We depend on our collaborators to help us develop and test our proposed products, and our ability to develop and commercialize products may be impaired or delayed if collaborations are unsuccessful.

Our strategy for the development, clinical testing and commercialization of our proposed products requires that we enter into collaborations with corporate partners, licensors, licensees and others. We are dependent upon the subsequent success of these other parties in performing their respective responsibilities and the continued cooperation of our partners. Our collaborators may not cooperate with us or perform their obligations under our agreements with them. We cannot control the amount and timing of our collaborators' resources that will be devoted to our research and development activities related to our collaborative agreements with them. Our collaborators may choose to pursue existing or alternative technologies in preference to those being developed in collaboration with us.

Under agreements with collaborators, we may rely significantly on such collaborators to, among other things:

- design and conduct advanced clinical trials in the event that we reach clinical trials;
- fund research and development activities with us;

- pay us fees upon the achievement of milestones; and
- market with us any commercial products that result from our collaborations.

The development and commercialization of potential products will be delayed if collaborators fail to conduct these activities in a timely manner, or at all. In addition, our collaborators could terminate their agreements with us and we may not receive any development or milestone payments. If we do not achieve milestones set forth in the agreements, or if our collaborators breach or terminate their collaborative agreements with us, our business may be materially harmed.

Contractual arrangements with licensors or collaborators may require us to pay royalties or make other payments related to the development of a product candidate, which would adversely affect the level of our future revenues and profits.

Even if we obtain all applicable regulatory approvals and successfully commercialize one or more of our cell therapy candidates, contractual arrangements between us and a licensor, collaborator or other third party in connection with the respective product may require that we make royalty or other payments to the respective third party, and as a result we would not receive all of the revenue derived from commercial sales of such product.

Our reliance on the activities of our non-employee consultants, research institutions, and scientific contractors, whose activities are not wholly within our control, may lead to delays in development of our proposed products.

We rely extensively upon and have relationships with scientific consultants at academic and other institutions, some of whom conduct research at our request, and other consultants with expertise in clinical development strategy or other matters. These consultants are not our employees and may have commitments to, or consulting or advisory contracts with, other entities that may limit their availability to us. We have limited control over the activities of these consultants and, except as otherwise required by our collaboration and consulting agreements to the extent they exist, can expect only limited amounts of their time to be dedicated to our activities. These research facilities may have commitments to other commercial and non-commercial entities. We have limited control over the operations of these laboratories and can expect only limited amounts of time to be dedicated to our research goals.

We may not be able to obtain third party patient reimbursement or favorable product pricing, which would reduce our ability to operate profitably.

Our ability to successfully commercialize certain of our proposed products in the human therapeutic field may depend to a significant degree on patient reimbursement of the costs of such products and related treatments at acceptable levels from government authorities, private health insurers and other organizations, such as health maintenance organizations. Reimbursement in the United States or foreign countries may not be available for any products we may develop, and, if available, may be decreased in the future. Also, reimbursement amounts may reduce the demand for, or the price of, our products with a consequent harm to our business. We cannot predict what additional regulation or legislation relating to the health care industry or third party coverage and reimbursement may be enacted in the future or what effect such regulation or legislation may have on our business. If additional regulations are overly onerous or expensive, or if health care related legislation makes our business more expensive or burdensome than originally anticipated, we may be forced to significantly downsize our business plans or completely abandon our business model.

Our products may be expensive to manufacture, and they may not be profitable if we are unable to control the costs to manufacture them.

Our products may be significantly more expensive to manufacture than other therapeutic products currently on the market today. We hope to substantially reduce manufacturing costs through process improvements, development of new methods, increases in manufacturing scale and outsourcing to experienced manufacturers. If we are not able to make these, or other improvements, and depending on the pricing of the product, our profit margins may be significantly less than that of other therapeutic products on the market today. In addition, we may not be able to charge a high enough price for any cell therapy product we develop, even if they are safe and effective, to make a profit. If we are unable to realize significant profits from our potential product candidates, our business would be materially harmed.

We presently lack sufficient manufacturing capabilities to produce our therapeutic product candidates at commercial scale quantities and do not have an alternate manufacturing supply, which could negatively impact our ability to meet any future demand for the product.

We expect that we would need to significantly expand our manufacturing capabilities to meet potential demand for our therapeutic product candidates, if approved. Such expansion would require additional regulatory approvals. Even if we increase our manufacturing capabilities, it is possible that we may still lack sufficient capacity to meet demand.

We do not presently have any alternate supply for our products. If our facilities where our products are currently being manufactured or equipment were significantly damaged or destroyed, or if there were other disruptions, delays or difficulties affecting manufacturing capacity, including if such facilities are deemed not in compliance with current Good Manufacturing Practice ("GMP") requirements, future clinical studies and commercial production for our products would likely be significantly disrupted and delayed. It would be both time consuming and expensive to replace this capacity with third parties, particularly since any new facility would need to comply with the regulatory requirements.

Ultimately, if we are unable to supply our products to meet commercial demand, whether because of processing constraints or other disruptions, delays or difficulties that we experience, our production costs could dramatically increase and sales of the product and its long-term commercial prospects could be significantly damaged.

To be successful, our proposed products must be accepted by the health care community, which can be very slow to adopt or unreceptive to new technologies and products.

Our proposed products and those developed by our collaborative partners, if approved for marketing, may not achieve market acceptance since hospitals, physicians, patients or the medical community in general may decide not to accept and utilize these products. The products that we are attempting to develop represent substantial departures from established treatment methods and will compete with a number of more conventional therapies manufactured and marketed by major pharmaceutical companies. The degree of market acceptance of any of our developed products will depend on a number of factors, including:

- our establishment and demonstration to the medical community of the clinical efficacy and safety of our proposed products;
- our ability to create products that are superior to alternatives currently on the market;
- our ability to establish in the medical community the potential advantage of our treatments over alternative treatment methods; and
- reimbursement policies of government and third-party payers.

If the healthcare community does not accept our products for any of the foregoing reasons, or for any other reason, our business would be materially harmed.

Our business is based on novel technologies that are inherently expensive, risky and may not be understood by or accepted in the marketplace, which could adversely affect our future value.

The clinical development, commercialization and marketing of cell and tissue-based therapies are at an early-stage, substantially research-oriented, and financially speculative. To date, very few companies have been successful in their efforts to develop and commercialize a stem cell product. In general, stem cell products may be susceptible to various risks, including undesirable and unintended side effects, unintended immune system responses, inadequate therapeutic efficacy, or other characteristics that may prevent or limit their approval or commercial use. Furthermore, the number of people who may use cell or tissue-based therapies is difficult to forecast with accuracy. Our future success is dependent on the establishment of a significant market for cell- and tissue-based therapies and our ability to capture a share of this market with our product candidates.

Our development efforts with our therapeutic product candidates are susceptible to the same risks of failure inherent in the development and commercialization of therapeutic products based on new technologies. The novel nature of cellular therapeutics creates significant challenges in the areas of product development and optimization, manufacturing, government regulation, third-party reimbursement and market acceptance. For example, the United States FDA has relatively limited experience regulating therapies based on cells, and there are few approved treatments utilizing cell therapy.

During the year ended December 31, 2021, we derived approximately 39% of our revenues from one customer.

During the year ended December 31, 2021, one customer accounted for 39% of our consolidated revenues. To the extent that this significant customer reduces or delays its purchases from us or terminate its relationship with us, our revenues would decline significantly, and our financial condition and results of operations would suffer substantially.

We depend on key personnel for our continued operations and future success, and a loss of certain key personnel could significantly hinder our ability to move forward with our business plan.

Because of the specialized nature of our business, we are highly dependent on our ability to identify, hire, train and retain highly qualified scientific and technical personnel for the research and development activities we conduct or sponsor. The loss of one or more

key executive officers, or scientific officers, would be significantly detrimental to us. In addition, recruiting and retaining qualified scientific personnel to perform research and development work is critical to our success. Our anticipated growth and expansion into areas and activities requiring additional expertise, such as clinical testing, regulatory compliance, manufacturing and marketing, will require the addition of new management personnel and the development of additional expertise by existing management personnel. There is intense competition for qualified personnel in the areas of our present and planned activities. Accordingly, we may not be able to continue to attract and retain the qualified personnel, which would adversely affect the development of our business.

We may not have sufficient product liability insurance, which may leave us vulnerable to future claims we will be unable to satisfy.

The testing, manufacturing, marketing and sale of human therapeutic products entail an inherent risk of product liability claims. We currently have a limited amount of product liability insurance, which may not be adequate to meet potential product liability claims. In the event we are forced to expend significant funds on defending product liability actions, and in the event those funds come from operating capital, we will be required to reduce our business activities, which could lead to significant losses. Adequate insurance coverage may not be available in the future on acceptable terms, if at all. If available, we may not be able to maintain any such insurance at sufficient levels of coverage and any such insurance may not provide adequate protection against potential liabilities. Whether or not a product liability insurance policy is obtained or maintained in the future, any product liability claim could harm our business or financial condition.

Many of the key materials in our products and packaging, and manufacturing services for certain of our other products, are obtained from a single or limited number of suppliers. Thus, we are at risk of shortages, price increases, tariffs, changes, delay, or discontinuation of key materials and manufacturing services, which could disrupt and materially and adversely affect our business.

Many of the key materials used to manufacture or package our LCT products come from limited or single sources of supply. In addition, in some cases primarily for our LSC products, we rely only on one manufacturer or a limited number of contract manufacturers to fill and finish, test, and package our products. In general, our contract manufacturers fabricate or procure certain materials and packaging on our behalf, subject to certain approved procedures or supplier lists. We do not have firm commitments from many of these suppliers and manufacturers to provide all materials and services, or to provide them in quantities and on timelines that we may require.

Due to our reliance on the key materials provided by suppliers and services provided by contract manufacturers, we are subject to the risk of shortages and long lead times or other disruptions in the supply of certain materials or services. For example, our ability to ship LCT products has recently been adversely affected by shortages in plastic resin that is used to make the packaging containers for those products. Our ongoing efforts to identify alternative suppliers (for many of the single-sourced or limited-sourced materials used in our products) and alternative contract manufacturers (for the assembly of our LSC products) may not be successful. We are subject to the risk that our suppliers may discontinue or modify the materials they provide to us, or that the materials may cease to be available on commercially reasonable terms, or at all. We have in the past experienced, and may in the future experience, materials shortages or delays or other problems in product assembly, and the availability of these materials or services may be difficult to predict. For example, our suppliers or manufacturers may experience temporary or permanent disruptions in their manufacturing operations due to equipment breakdowns, labor strikes or shortages, natural disasters, the occurrence of a contagious disease or illness, such as COVID-19, component or material shortages, cost increases, acquisitions, insolvency, bankruptcy, business shutdowns, trade restrictions, changes in legal or regulatory requirements, or other similar problems. In particular, the current COVID-19 pandemic has caused disruptions in our supply chain. To the extent COVID-19 pandemic continues and results in continuing restrictions, disruptions in our supply chain may continue and cause shortages of our ability to sell products, which could materially and adversely impact our financial results.

Additionally, various sources of supply-chain risk, including strikes or shutdowns at delivery ports or loss of or damage to our products while they are in transit or storage, intellectual property theft, losses due to tampering, third-party vendor issues with quality or sourcing control, failure by our suppliers to comply with applicable laws and regulation, potential tariffs or other trade restrictions, or other similar problems, could limit or delay the supply of our products or harm our reputation. In the event of a shortage or supply interruption from suppliers or contract manufacturers, we may not be able to develop alternate sources quickly, cost-effectively, or at all. Any interruption or delay in material supply or manufacturing, any increases in material or manufacturing costs, or the inability to obtain these materials or services from alternate sources at acceptable prices and within a reasonable amount of time, would harm our ability to provide our products on a timely basis. This could materially and adversely affect our business.

Economic uncertainties and unfavorable economic conditions could adversely affect our business, financial condition, results of operations or our access to capital.

Our business, financial condition, results of operations or prospects could be adversely affected by general economic conditions and uncertainties, including in the financial markets. Negative economic conditions, both in the United States and abroad, including the effects of changes in economic growth and expectations, labor shortages, supply chain disruptions, inflationary pressures, financial and

credit market fluctuations, international trade relations and/or the imposition of trade tariffs, political turmoil, natural catastrophes, regional or global outbreaks of contagious diseases, such as the ongoing COVID-19 pandemic, terrorist attacks and warfare (such as the Russia – Ukraine conflict and any resulting sanctions imposed), as well as related governmental or regulatory responses, could cause a decrease or deferral in spending by our customers and otherwise negatively affect our business. A severe or prolonged economic downturn or economic uncertainties from these or other factors could also adversely affect our ability to raise additional capital when needed on acceptable terms, if at all. A weak or declining economy could also strain our suppliers, possibly resulting in supply disruptions. Any such disruptions may also magnify the impact of other risks described in this Annual Report on Form 10-K.

Risks Related to the Securities Markets and Our Capital Structure

Stock prices for biotechnology companies have historically tended to be very volatile.

Stock prices and trading volumes for many biotechnology companies fluctuate widely for a number of reasons, including but not limited to the following factors, some of which may be unrelated to their businesses or results of operations:

- clinical trial results;
- the amount of cash resources and such company's ability to obtain additional funding;
- announcements of research activities, business developments, technological innovations or new products by competitors;
- entering into or terminating strategic relationships;
- changes in government regulation;
- disputes concerning patents or proprietary rights;
- changes in revenues or expense levels;
- public concern regarding the safety, efficacy or other aspects of the products or methodologies being developed;
- development of major public health concerns, including the novel coronavirus outbreak or other pandemics arising globally, and the current and future impact of it and COVID-19 to the financial market;
- reports by securities analysts;
- activities of various interest groups or organizations;
- media coverage; and
- status of the investment markets.

This market volatility, as well as general domestic or international economic, market and political conditions, could materially and adversely affect the market price of our common stock.

Two of our executive officers and directors can significantly influence our direction and policies, and their interests may be adverse to the interests of our other stockholders.

As of December 31, 2021, Dr. Andrey Semechkin, Chief Executive Officer and Co-Chairman of the Board of Directors, and Dr. Russell Kern, Executive Vice President and Chief Scientific Officer and a director, beneficially own approximately 64% of our outstanding shares of common stock, including shares issuable upon conversion of the outstanding shares of our Series D, Series G, and Series I-2 Preferred Stock and shares issuable upon exercise of options that they hold and that are exercisable within 60 days of December 31, 2021. As a result of their holdings and the rights, preferences and privileges of those series of preferred stock, Dr. Andrey Semechkin and Dr. Russell Kern may appoint and remove two of our four directors, and propose candidates for nomination of up to two additional directors, and therefore will be able to significantly influence the election of our Board of Directors. They may also prevent corporate transactions (such as a merger, consolidation, a sale of all or substantially all of our assets or a financing transaction) that may be favorable from the standpoint of our other stockholders or they may cause a transaction that our other stockholders may view as unfavorable.

The rights of holders of our common stock are subordinate to significant rights, preferences and privileges of our existing five series of preferred stock, and to any additional series of preferred stock created in the future.

Under the authority granted by our Certificate of Incorporation, our Board of Directors has established four separate series of outstanding preferred stock, Series B, Series D, Series G and Series I-2 Preferred Stock, which have various rights and preferences

senior to the shares of common stock. Shares of some series of our existing preferred stock are also entitled to enhanced voting rights and liquidation preferences. As a result of the various voting rights, the holders of our existing preferred stock may be able to block the proposed approval of various corporate actions, which could prevent us from achieving strategic or other goals dependent on such actions. As a result of the liquidation preferences, in the event that we voluntarily or involuntary liquidate, dissolve or windup our affairs (including as a result of a merger), the holders of our preferred stock would be entitled to receive stated amounts per share, including any accrued and unpaid dividends, before any distribution of assets or merger consideration is made to holders of our common stock. Additionally, these shares of preferred stock may be converted, at the option of the holders, into common stock at rates that may be adjusted, for the benefit of holders of preferred stock, if we sell equity securities below the then existing conversion prices. Any such adjustments would compound the potential dilution suffered by holders of common stock if we issue additional securities at prices below the current conversion prices (ranging from $1.08 to $9.69 per share as of December 31, 2021). Additionally, subject to the consent of the holders of our existing preferred stock, our Board of Directors has the power to issue additional series of preferred stock and to designate, as it deems appropriate (subject to the rights of the holders of the current series of preferred stock), the special dividend, liquidation or voting rights of the shares of those additional series. The creation and designation of any new series of preferred stock could adversely affect the voting power, dividend, liquidation and other rights of holders of our common stock and, possibly, any other class or series of stock that is then in existence.

The market price for our common stock has been and may continue to be particularly volatile given our status as a relatively unknown company with a limited operating history and lack of profits, which could lead to wide fluctuations in our share price. The price at which stockholders purchase shares of our common stock may not be indicative of the price of our common stock that will prevail in the trading market.

The market for our common stock may be characterized by significant price volatility when compared to seasoned issuers, and we expect that our stock price could continue to be more volatile than a seasoned issuer for the indefinite future. The potential volatility in our share price is attributable to a number of factors. First, there has been limited trading in our common stock. As a consequence of this lack of liquidity, any future trading of shares by our stockholders may disproportionately influence the price of those shares in either direction. Second, we are a speculative or "risky" investment due to our limited operating history and lack of profits to date, and uncertainty of future market acceptance for our potential products. As a consequence of this enhanced risk, more risk averse investors may, under the fear of losing all or most of their investment in the event of negative news or lack of progress, be more inclined to sell their shares on the market more quickly and at greater discounts than would be the case with the stock of a seasoned issuer. Many of these factors will be beyond our control and may decrease the market price of our common stock, regardless of our operating performance. We cannot make any predictions or projections as to what the prevailing market price for our common stock will be at any time or as to what effect that the sale of shares or the availability of shares for sale at any time will have on the prevailing market price.

In addition, the market price of our common stock could be subject to wide fluctuations in response to:

- quarterly variations in our revenues and operating expenses;
- announcements of new products or services by us;
- fluctuations in interest rates;
- significant sales of our common stock;
- the operating and stock price performance of other companies that investors may deem comparable to us; and
- news reports relating to trends in our markets or general economic conditions.

Certain provisions of our Certificate of Incorporation and Delaware law may make it more difficult for a third party to affect a change-in-control.

Our Certificate of Incorporation authorizes the Board of Directors to issue up to 20,000,000 shares of preferred stock and our Board of Directors has created and issued shares of four series of preferred stock that remain outstanding, Series B, Series D and Series I-2 Preferred Stock. The terms of various series of Preferred Stock include, among other things, voting rights on particular matters (for example, with respect to the Series D Preferred Stock, restricting our ability to undergo a change in control or merge with, or sell assets to, a third-party), preferences as to dividends and liquidation, and conversion rights. These preferred stock rights diminish the rights of holders of our common stock, and therefore could reduce the value of such common stock. In addition, as long as shares of our Series B, Series D and Series G Preferred Stock remain outstanding, or if our Board creates and issues additional shares of preferred stock in the future with rights that restrict our ability to merge with, or sell assets to, a third party, it could make it more difficult, delay, discourage, prevent or make it more costly to acquire the Company or affect a change-in-control.

The application of the "penny stock" rules to our common stock could limit the trading and liquidity of our common stock, adversely affect the market price of our common stock and increase stockholder transaction costs to sell those shares.

While we are currently exempt from the "penny stock" rules, as long as the trading price of our common stock is below $5.00 per share, the open market trading of our common stock would be subject to the "penny stock" rules, if we otherwise do not continue to qualify for an exemption from the "penny stock" definition. The "penny stock" rules impose additional sales practice requirements on certain broker-dealers who sell securities to persons other than established customers and accredited investors (generally those with assets in excess of $1 million or annual income exceeding $200 thousand or $300 thousand together with their spouse). These regulations, if they apply, require the delivery, prior to any transaction involving a penny stock, of a disclosure schedule explaining the penny stock market and the associated risks. Under these regulations, certain brokers who recommend such securities to persons other than established customers or certain accredited investors must make a special written suitability determination regarding such a purchaser and receive such purchaser's written agreement to a transaction prior to sale. These regulations may have the effect of limiting the trading activity of our common stock, reducing the liquidity of an investment in our common stock and increasing the transaction costs for sales and purchases of our common stock as compared to other securities.

The sale or issuance of a substantial number of shares may adversely affect the market price for our common stock.

The future sale of a substantial number of shares of our common stock in the public market, or the perception that such sales could occur, could significantly and negatively affect the market price for our common stock. We expect that we will likely issue a substantial number of shares of our capital stock in financing transactions in order to fund our operations and the growth of our business. Under these arrangements, we may agree to register the shares for resale soon after their issuance. We may also continue to pay for certain goods and services with equity, which would dilute our current stockholders. Also, sales of the shares issued in this manner could negatively affect the market price of our stock.

Our ability to utilize our net operating loss carryforwards and certain other tax attributes may be limited.

We have incurred substantial tax losses during our history. Subject to various limitations, we may carryforward unused taxable losses, including those generated in the future, and other available credits to offset any future taxable income until the unused losses or credits expire. Federal and state tax laws impose restrictions on the utilization of net operating loss ("NOL") and tax credit carryforwards in the event of an "ownership change" as defined by Section 382 of the Internal Revenue Code of 1986, as amended ("Section 382"). Generally, an ownership change occurs if the percentage of the value of the stock that is owned by one or more direct or indirect "five percent shareholders" increases by more than 50 percentage points over their lowest ownership percentage at any time during the applicable testing period (typically, three years). Under Section 382 and Section 383, if a corporation undergoes an "ownership change," the corporation's ability to use its pre-change NOL carryforwards and other pre-change tax attributes to offset its post change income may be limited. Because of the cost and complexity involved in the analysis of a Section 382 ownership change and the fact that we do not have any taxable income to offset, we have not undertaken a study to assess whether an "ownership change" has occurred or whether there have been multiple ownership changes since we became a "loss corporation" as defined in Section 382. Future changes in our stock ownership, which may be outside of our control, may trigger an "ownership change." In addition, future equity offerings or acquisitions that have equity as a component of the purchase price could result in an "ownership change." If an "ownership change" has occurred or does occur in the future, our ability to utilize our NOL carryforwards or other tax attributes may be limited, which could result in an increased future tax liability to us.

Limitations on director and officer liability and indemnification of our officers and directors by us may discourage stockholders from bringing suit against a director.

Our certificate of incorporation and bylaws provide, with certain exceptions as permitted by governing state law, that a director or officer shall not be personally liable to us or our stockholders for breach of fiduciary duty as a director, except for acts or omissions which involve intentional misconduct, fraud or knowing violation of law, or unlawful payments of dividends. These provisions may discourage stockholders from bringing suit against a director for breach of fiduciary duty and may reduce the likelihood of derivative litigation brought by stockholders on our behalf against a director. In addition, our certificate of incorporation and bylaws may provide for mandatory indemnification of directors and officers to the fullest extent permitted by governing state law.

Compliance with the rules established by the SEC pursuant to Section 404 of the Sarbanes-Oxley Act of 2002 is complex. Failure to comply in a timely manner could adversely affect investor confidence and our stock price.

Rules adopted by the SEC pursuant to Section 404 of the Sarbanes-Oxley Act of 2002 require us to perform an annual assessment of our internal controls over financial reporting and certify the effectiveness of those controls. The standards that must be met for management to assess the internal controls over financial reporting now in effect are complex, costly and require significant documentation, testing and possible remediation to meet the detailed standards. We may encounter problems or delays in completing

activities necessary to make an assessment of our internal controls over financial reporting. If we cannot perform the assessment or certify that our internal controls over financial reporting are effective investor confidence and share value may be negatively impacted.

ITEM 1B. UNRESOLVED STAFF COMMENTS.

None.

ITEM 2. PROPERTIES

In October 2021, we entered into a joint lease agreement with S Real Estate Holding, LLC (an affiliate of our Executive Vice President and Chief Scientific Officer) for the purpose of establishing a new corporate headquarters that combines the Company's research facility and corporate offices, including corporate, R&D, and manufacturing operations, in San Diego, California. In connection with entering into the joint lease agreement, we entered into a co-tenant agreement with S Real Estate Holdings, LLC, to share costs related to the leased premises. In addition to base rent, the Company and S Real Estate Holdings, LLC, are responsible for certain costs and expenses, including insurance, maintenance costs, taxes and operating expenses. The lease covers approximately 7,300 square feet, of which portions of the facility are designated for use by the Company, S Real Estate Holdings, LLC, or shared. The lease for this facility expires in December 2026. At commencement, base rent due under the lease was approximately $11 thousand and increases approximately 3.5% per annum over the lease term. Pursuant to the co-tenant agreement with S Real Estate Holdings, LLC, we are liable for 40% of total base rent and variable lease charges due under the joint lease agreement.

We also lease supplemental office space in a building adjacent to our new corporate headquarter from the same landlord. The supplemental office lease expires in December 2026 and is not subject to the co-tenant agreement with S Real Estate Holdings, LLC. The new corporate headquarters lease and supplemental office lease do not contain any options to renew to extend the lease terms.

In addition, we lease a 13,320 square foot facility in Frederick, Maryland, which is used for laboratory and administrative purposes. The current lease expires in November 2025. As of December 31, 2021, the base rent was approximately $18 thousand per month. The laboratory is used to develop and manufacture our research products and the administration facility is used for sales and marketing, and general administration purposes. The monthly base rent will increase by 3% on each anniversary date of the agreement.

We believe our existing facilities are adequate to meet our current operational needs, and that suitable alternatives will be available in the future as and when needed on commercially reasonably terms.

ITEM 3. LEGAL PROCEEDINGS.

None.

ITEM 4. MINE SAFETY DISCLOSURES.

Not applicable.

PART II

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

Market Information

As of December 31, 2021, we had 8,004,389 shares of common stock outstanding, and approximately 636 holders of record of our common stock, and we had 5,254,353 shares of preferred stock outstanding, and seven holders of record of our preferred stock, with the 5,254,353 shares of preferred stock being convertible into 5,666,978 shares of common stock.

On March 4, 2019, we were upgraded to trade from the OTC QB Venture Market to the OTC QX Best Market in the United States under the trading symbol "ISCO". The OTC QX is a regulated quotation service that displays real-time quotes, last-sale prices and volume information in over-the-counter equity securities. The OTC QX securities are traded by a community of market makers that enter quotes and trade reports. This market is limited in comparison to an exchange and any prices quoted may not be a reliable indication of the value of our common stock.

Dividends

Our Board of Directors determines any payment of dividends. We have never declared or paid cash dividends on our common stock. We do not expect to authorize the payment of cash dividends on our shares of common stock in the foreseeable future. Any future decision with respect to dividends will depend on our future earnings, operations, capital requirements and availability, restrictions in future financing agreements and other business and financial considerations.

ITEM 6. (RESERVED)

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

The following discussion of our financial condition and results of operations should be read in conjunction with our audited consolidated financial statements and related notes and other financial information included elsewhere in this Annual Report on Form 10-K. The discussion contains forward-looking statements, such as our plans, expectations and intentions (including those related to clinical trials and business and expense trends), that are based upon current expectations and that involve risks and uncertainties. Our actual results may differ significantly from management's expectations. The factors that could affect these forward-looking statements are in Item 1A of Part I of this report. This discussion should not be construed to imply that the results discussed herein will necessarily continue into the future, or that any expectations expressed herein will necessarily be indicative of actual operating results in the future. Such discussion represents only the best present assessment by our management.

Business Overview

We have generated aggregate product revenues from our two commercial businesses of $7.2 million and $7.1 million for the years ended December 31, 2021 and 2020, respectively. We currently have no revenue generated from our principal operations in therapeutic and clinical product development.

Our products are based on multi-decade experience with human cell culture and a proprietary type of pluripotent stem cells, human parthenogenetic stem cells ("hpSCs"). Our hpSCs are comparable to human embryonic stem cells ("hESCs") in that they have the potential to be differentiated into many different cells in the human body. However, the derivation of hpSCs does not require the use of fertilized eggs or the destruction of viable human embryos and also offers the potential for the creation of immune-matched cells and tissues that are less likely to be rejected following transplantation. Our collection of hpSCs, known as UniStemCell™, currently consists of 15 stem cell lines. We have facilities and manufacturing protocols that comply with the requirements of Good Manufacturing Practice (GMP) standards as promulgated by the U.S. Code of Federal Regulations and enforced by the United States Food and Drug Administration ("FDA").

COVID-19 Pandemic

The impact of the COVID-19 pandemic has been and will likely continue to be extensive in many aspects of society, which has resulted in and will likely continue to result in significant disruptions to the global economy, as well as businesses and capital markets around the world. Impacts to our business have included a reduction in sales volume primarily from media sales in our biomedical market segment and professional channel sales in our anti-aging market segment, temporary or reduced occupancy of portions of our manufacturing facilities, and disruptions or restrictions on our employee's ability to travel to such manufacturing facilities which caused minor delays in manufacturing. Our manufacturing facilities continue to operate as they are deemed essential suppliers in accordance with laws applicable to California and Maryland. We have taken precautionary measures to better ensure the health and safety of our workers, including staggering employees' shifts and isolating at-risk employees.

The scope and duration of these delays and disruptions, and the ultimate impacts of COVID-19 on our operations, are currently unknown. We are continuing to actively monitor the situation and may take further precautionary and preemptive actions as may be required by federal, state or local authorities or that we determine are in the best interests of public health and safety. We cannot predict the effects that such actions, or the impact of COVID-19 on global business operations and economic conditions, may continue to have on our business, strategy, collaborations, or financial and operating results.

Market Opportunity and Growth Strategy

Therapeutic Market – Clinical Applications of hpSCs for Disease Treatments

With respect to therapeutic research and product candidates, we focus on applications where cell and tissue therapy is already proven but where there is an insufficient supply of safe and functional cells or tissue. We believe that the most promising potential clinical applications of our technology are: 1) Parkinson's disease ("PD"); and 2) traumatic brain injury ("TBI"). Using our proprietary technologies and know-how, we are creating neural stem cells from hpSCs as a potential treatment of PD, TBI and stroke.

Our most advanced project is the neural stem cell program for the treatment of Parkinson's disease. In 2013 we published in Nature Scientific Reports the basis for our patent on a new method of manufacturing neural stem cells which is used to produce the clinical-grade cells necessary for future clinical studies and commercialization. In 2014 we completed the majority of the preclinical research establishing the safety profile of NSC in various animal species including non-human primates. In June 2016 we published the results of a 12-month pre-clinical non-human primate study, which demonstrated the safety, efficacy and mechanism of action of the ISC- hpNSC®. In 2017 we dosed four patients in our Phase I trial of ISC-hpNSC®, human parthenogenetic stem cell-derived neural stem

cells for the treatment of Parkinson's disease. We reported 12-month results from the first cohort and 6-month interim results of the second cohort at the Society for Neuroscience annual meeting (Neuroscience 2018) in November 2018. In April 2019, we announced the completion of subject enrollment, with the 12th subject receiving a transplantation of the highest dose of cells. There have been no safety signals or serious adverse effects seen to date as related to the transplanted ISC-hpNSC® cells.

In August 2014 we announced the launch of a stroke program, evaluating the use of ISC-hpNSC® transplantation for the treatment of ischemic stroke using a rodent model of the disease. The Company has a considerable amount of safety data on ISC-hpNSC® from the Parkinson's disease program and, as there is evidence that transplantation of ISC-hpNSC® may improve patient outcomes as an adjunctive therapeutic strategy in stroke, having a second program that can use this safety dataset is therefore a logical extension. In 2015 the Company together with Tulane University demonstrated that NSC can significantly reduce neurological dysfunction after a stroke in animal models.

In October 2016 we announced the results of the pre-clinical rodent study, evaluating the use of ISC-hpNSC® transplantation for the treatment of TBI. The study was conducted at the University of South Florida Morsani College of Medicine. We demonstrated that animals receiving injections of ISC-hpNSC® displayed the highest levels of improvements in cognitive performance and motor coordination compared to vehicle control treated animals. In February 2019, we published the results of the pre-clinical study in Theranostics, a prestigious peer-reviewed medical journal. The publication titled, "Human parthenogenetic neural stem cell grafts promote multiple regenerative processes in a traumatic brain injury model," demonstrated that the clinical-grade neural stem cells used in our Parkinson's disease clinical trial, ISC-hpNSC®, significantly improved TBI-associated motor, neurological, and cognitive deficits without any safety issues.

Anti-Aging Cosmetic Market – Skin Care Products

Our wholly-owned subsidiary LSC develops, manufactures and offers for sale anti-aging skin care products based on two core technologies: encapsulated extract derived from hpSC and specially selected targeted small molecules. LSC's products include:

- ProPlus Advanced Defense Complex
- ProPlus Advanced Recovery Complex
- ProPlus Eye Firming Complex
- ProPlus Neck Firming Complex
- ProPlus Advanced Aquoues Treatment
- ProPlus Collagen Booster (Advanced Molecular Serum)
- ProPlus Elastin Booster
- ProPlus Brightening Toner

LSC's products are regulated as cosmetics. LSC's products are sold domestically through a branded website, Amazon, ecommerce partners and through the professional channel (including dermatologists, plastic surgeons, medical, day and resort spas).

Biomedical Market – Primary Human Cell Research Products

Our wholly-owned subsidiary LCT develops, manufactures and commercializes approximately 200 human cell culture products, including frozen human "primary" cells and the reagents (called "media") needed to grow, maintain and differentiate the cells. LCT's scientists have used a standardized, methodical, scientific approach to basal medium optimization to systematically produce optimized products designed to culture specific human cell types and to elicit specific cellular behaviors. These techniques can also be used to produce products that do not contain non-human animal proteins, a feature desirable to the research and therapeutic markets. Each LCT cell product is quality tested for the expression of specific markers (to assure the cells are the correct type), proliferation rate, viability, morphology and absence of pathogens. Each cell system also contains associated donor information and all informed consent requirements are strictly followed. LCT's research products are marketed and sold by its internal sales force, OEM partners and LCT brand distributors in Europe and Asia.

Results of Operations

Comparison of the Years Ended December 31, 2021 and 2020

The following table summarizes our results of operations for the years ended December 31, 2021 and 2020, together with the dollar and percent change in those items (in thousands):

	Years Ended December 31,			
	2021	2020	$ Change	% Change
Product sales	$ 7,176	$ 7,128	$ 48	1%
Cost of sales	2,935	2,781	154	6%
As a % of revenues	*41%*	*39%*		
General and administrative	4,084	4,422	(338)	-8%
Selling and marketing	1,383	1,755	(372)	-21%
Research and development	695	988	(293)	-30%
Other income (expense), net	1,022	94	928	987%
Net loss	$ (899)	$ (2,724)	$ 1,825	-67%
As a % of revenues	*-13%*	*-38%*		

Product Sales

Product sales revenue for the year ended December 31, 2021 was $7.2 million, compared to $7.1 million for the year ended December 31, 2020. The increase was primarily attributable to a $342 thousand increase in sales in our biomedical market segment, largely offset by a $294 thousand decrease in sales in our anti-aging market during 2021 compared to 2020.

Our biomedical product sales continue to recover from the impacts of COVID-19 as purchasing activity from our largest original equipment manufacturer customers increases.

Our professional skin care products, which are largely marketed to medical professionals and spas that offer walk-up retail, experienced a significant decline in customer demand due to COVID-19 and the related restrictions as these businesses have continued with limited or reduced operations during the year ended December 31, 2021. The impact of these restrictions was mitigated in-part by expanding our offering of professional skin care products through our ecommerce channel. Anti-aging product sales through our ecommerce channel remained consistent year-over-year.

Cost of Sales

Cost of sales for the year ended December 31, 2021 was $2.9 million, compared to $2.8 million for the year ended December 31, 2020. The increase was primarily attributable to an increase in costs as a result of an increase in product sales. Profit margins have deteriorated for the year ended December 31, 2021 as compared to 2020, largely as a result of rising raw materials and labor related costs, and a scarcity of certain materials, principally plastics. In response, we have increased our supply of raw materials on hand and have, where possible, sourced materials from alternative vendors.

Cost of sales consists primarily of salaries and benefits associated with employee efforts expended directly on the production of the Company's products, as well as related direct materials, general laboratory supplies and an allocation of overhead. We aim to continue refining our manufacturing processes and supply chain management to improve the cost of sales as a percentage of revenue for both LCT and LSC.

General and Administrative Expenses

General and administrative expenses for the year ended December 31, 2021 was $4.1 million, compared to $4.4 million for the year ended December 31, 2020. The decrease was primarily attributable to a decrease in personnel-related costs and stock-based compensation of $522 thousand, a $87 thousand decrease in consulting and servicing fees, and a $26 thousand decrease in investor relations fees, partially offset by an increase in impairment of intangible assets of $184 thousand, a $57 thousand increase in director and officer liability insurance premiums, a $24 thousand increase in human resource related expenses, a $16 thousand gain on foreign currency exchange rate conversion, and a $15 thousand increase in filing fees.

Selling and Marketing Expenses

Selling and marketing expenses for the year ended December 31, 2021 was $1.4 million, compared to $1.8 million for the year ended December 31, 2020. The decrease was primarily attributable to a $178 thousand decrease in personnel-related costs, sales commissions and stock-based compensation, primarily as a result of headcount reductions and grants from 2018 which were issued and fully vested in 2021, and a $211 thousand decrease in marketing, advertising, and building related expenses, partially offset by a $17 thousand increase in consulting and creative service fees. The reduction in marketing, advertising, and building related expenses was largely attributable to travel restrictions as a result of COVID-19.

Research and Development Expenses

Research and development expenses for the year ended December 31, 2021 was $0.7 million, compared to $1.0 million for the year ended December 31, 2020. The decrease was primarily attributable to a $247 thousand decrease in personnel-related costs and stock-based compensation primarily as a result of headcount reductions and grants from 2018 which were issued and fully vested in 2021, a $89 thousand decrease in materials and supplies related to clinical trial expenses, a $46 thousand decrease in consulting services, partially offset by a $45 thousand increase in building and utilities related expenses and a $44 thousand decrease in our research and development tax credit related to qualifiable expenditures from our research and development activities of our Australia subsidiary, Cyto Therapeutics, which reduced research and development expenses for years ended December 31, 2021 and 2020.

Our research and development efforts are primarily focused on the development of treatments for Parkinson's disease, traumatic brain injury, liver diseases, stroke, and the creation of new GMP grade human parthenogenetic stem cell lines. These projects are long-term investments that involve developing both new stem cell lines and new differentiation techniques that can provide higher purity populations of functional cells. Research and development expenses are expensed as incurred and are accounted for on a project-by-project basis. However, much of our research has potential applicability to each of our projects. As we completed Phase 1 of our clinical in June 2021, we do not anticipate significant investment in research and development efforts related to therapeutic and clinical product development efforts for the foreseeable future, or until such time that we initiate a Phase 2 clinical trial.

Other Income, Net

Other income, net, for the year ended December 31, 2021 was $1.0 million, compared to other income, net, of $94 thousand for the year ended December 31, 2020. The increase was primarily attributable to forgiveness of our First Draw Loan and Second Draw Loan from the PPP, collectively totaling $1.1 million, partially offset by a decrease of $207 thousand for the change in the fair value of the warrant liability during the prior year period. The warrants expired unexercised in March 2021 and, as such, no further change in the fair value of the warrant liability will be recognized.

Liquidity and Capital Resources

As of December 31, 2021, we had an accumulated deficit of approximately $110 million and have, on an annual basis, incurred net losses and negative operating cash flows since inception. Substantially all of our operating losses have resulted from the funding of our research and development programs and general and administrative expenses associated with our operations. We incurred net losses of $0.9 million and $2.7 million for years ended December 31, 2021 and 2020, respectively. As of December 31, 2021, we had cash of $171 thousand, compared to $689 thousand as of December 31, 2020.

In May 2020, we received a first draw loan of $654 thousand from the PPP ("First Draw Loan") which provided additional liquidity to support our current operations. In March 2021, we received a second draw loan of $474 thousand from the PPP ("Second Draw Loan"). In June 2021, we applied for and received forgiveness of unpaid principal and accrued interest from our First Draw Loan in the amount of $661 thousand. In August 2021, we applied for and received forgiveness of unpaid principal and accrued interest from our Second Draw Loan in the amount of $476 thousand. As of December 31, 2021, we are not eligible to receive any additional funding, or have any further obligations, related to the PPP.

Cash Flows

Comparison of the Years Ended December 31, 2021 and 2020

The following table provides information regarding our cash flows for the years ended December 31, 2021 and 2020 (in thousands):

	Years Ended December 31,	
	2021	2020
Net cash used in operating activities	$ (1,297)	$ (341)
Net cash used in investing activities	(45)	(108)
Net cash provided by financing activities	824	654
Net increase (decrease) in cash	$ (518)	$ 205

Operating Cash Flows

For the year ended December 31, 2021, net cash used in operating activities was $1.3 million, resulting primarily from our net loss of $899 thousand and net changes in operating assets and liabilities of $823 thousand, consisting primarily of an increase in accounts receivable of $441 thousand, inventory, net, of $268 thousand, and decrease in operating lease liabilities of $342 thousand, partially offset by net non-cash adjustments of $425 thousand. For the year ended December 31, 2020, net cash used in operating activities was $341 thousand, resulting primarily from our net loss of $2.7 million and change in fair value of warrant liability of $207 thousand, offset by non-cash adjustments of stock-based compensation expense of $1.3 million, operating lease expense of $265 thousand and depreciation and amortization of $253 thousand, coupled with net changes in operating assets and liabilities of $623 thousand.

Investing Cash Flows

Net cash used in investing activities for the year ended December 31, 2021 was $45 thousand, compared to $108 thousand for the year ended December 31, 2020. The decrease was attributable to a decrease in payments for patent licenses of $58 thousand and purchases of property and equipment of $5 thousand year-over-year.

Financing Cash Flows

Net cash provided by financing activities for year ended December 31, 2021 was $0.8 million, compared to $0.7 million for the year ended December 31, 2020. For the year ended December 31, 2021, net cash provided by financing activities consisted of $474 thousand in proceeds from our second draw loan under the Paycheck Protection Program, coupled with proceeds from a note payable from a related party of $350 thousand. For the year ended December 31, 2020, net cash provided by financing activities consisted of $654 thousand in proceeds from our first draw loan under the Paycheck Protection Program.

Liquidity and Going Concern

Management continues to evaluate various financing sources and options to raise working capital to help fund our current research and development programs and operations. We will need to obtain significant additional capital from sources including exercise of outstanding warrants, equity and/or debt financings, license arrangements, grants and/or collaborative research arrangements to sustain our operations and develop products. Unless we obtain additional financing, we do not have sufficient cash on hand to sustain our operations at least through one year after the issuance date. The timing and degree of any future capital requirements will depend on many factors, including:

- the accuracy of the assumptions underlying the estimates for capital needs in 2022 and beyond;
- the extent that revenues from sales of LSC and LCT products cover the related costs and provide capital;
- scientific progress in our research and development programs;
- the magnitude and scope of our research and development programs and our ability to establish, enforce and maintain strategic arrangements for research, development, clinical testing, manufacturing and marketing;
- our progress with pre-clinical development and clinical trials;
- the extent to which third party interest in Company’s research and commercial products can be realized through effective partnerships;
- the time and costs involved in obtaining regulatory approvals;

- the costs involved in preparing, filing, prosecuting, maintaining, defending and enforcing patent claims;
- the number and type of product candidates that we pursue; and
- the development of major public health concerns, including the novel coronavirus outbreak or other pandemics arising globally, and the current and future impact of it and COVID-19 on our business operations and funding requirements.

Our failure to raise capital or enter into applicable arrangements when needed would have a negative impact on our financial condition. Additional debt financing may be expensive and require us to pledge all or a substantial portion of its assets. Further, if additional funds are obtained through arrangements with collaborative partners, these arrangements may require us to relinquish rights to some of its technologies, product candidates or products that we would otherwise seek to develop and commercialize on its own. If sufficient capital is not available, we may be required to delay, reduce the scope of or eliminate one or more of its product initiatives.

We currently have no revenue generated from our principal operations in therapeutic and clinical product development through research and development efforts. In addition, as we completed Phase 1 of our clinical in June 2021, we do not anticipate significant investment in research and development efforts related to therapeutic and clinical product development efforts for the foreseeable future, or until such time that we initiate a Phase 2 clinical trial. There can be no assurance that we will be successful in maintaining our normal operating cash flow and obtaining additional funds and that the timing of our capital raising or future financing will result in cash flow sufficient to sustain our operations at least through one year after the issuance date.

Based on the factors above, there is substantial doubt about our ability to continue as a going concern. The consolidated financial statements were prepared assuming that we will continue to operate as a going concern. The consolidated financial statements do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets or the amounts and classification of liabilities that may result from the outcome of this uncertainty. Management's plans in regard to these matters are focused on managing our cash flow, the proper timing of our capital expenditures, and raising additional capital or financing in the future.

Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition and results of operations is based upon our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, expenses and related disclosures. On an on-going basis, we evaluate our estimates and assumptions and we base our estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions and conditions.

Our significant accounting policies are more fully described in Note 1 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K. Our most critical accounting estimates include current and non-current inventory, intangible assets, and stock-based compensation. We review our estimates and assumptions periodically and reflect the effects of revisions in the period in which they are deemed to be necessary. We believe that the following accounting policies are critical to the judgments and estimates used in preparation of our consolidated financial statements.

Intangible Assets

Our intangible assets consist of acquired patent licenses and capitalized legal fees related to the acquisition, filing, maintenance, and defense of patents and trademarks. Amortization begins once the patent is issued by the appropriate authoritative bodies. In the period in which a patent application is rejected or efforts to pursue the patent are abandoned, all the related accumulated costs are expensed. Our patents and other intangible assets are amortized on a straight-line basis over the shorter of the useful life of the underlying patent, which is generally 15 years, or when the intangible asset is rejected or abandoned. All amortization expense and impairment charges related to intangible assets are included in general and administrative expense in our consolidated statements of operations.

Allowance for Excess and Obsolete Inventory

Our inventory, particularly within our biomedical market, consists of certain products that have a long or, when frozen, indefinite shelf life. In addition, future demand for our products is uncertain. Accordingly, at each reporting period, we estimate a reserve for allowance for excess and obsolete inventory. This estimate is computed using historical sales data and inventory turnover rates, which are subjective in nature and fluctuate between periods. The establishment of a reserve for excess and obsolete inventory establishes a

new cost basis in the inventory with a corresponding adjustment to cost of sales. If we are unable to sell such inventory, any related reserves are reduced in the period of sale.

Stock-Based Compensation

We are required to measure and recognize compensation expense for all stock-based payment awards made to employees and consultants based on estimated fair value. We estimate the fair value of stock options granted using the Black-Scholes option-pricing model.

The determination of fair value of stock-based awards using the Black-Scholes option-pricing model requires the use of certain estimates and subjective assumptions that affect the amount of stock-based compensation expense recognized in our consolidated statements of operations. These include estimates of the expected volatility of our stock price, expected option life, expected dividends and the risk-free interest rate. Estimated volatility is a measure of the amount by which our stock price is expected to fluctuate each year during the expected life of the award. The expected option life is calculated using the mid-point method as prescribed by accounting guidance for stock-based compensation. We determined expected dividend yield to be 0% given that we have never declared or paid any cash dividends on our common stock, and we currently do not anticipate paying such cash dividends. The risk-free interest rate is based upon United States Treasury securities with remaining terms similar to the expected term of the share-based awards. If any of the assumptions used in the Black-Scholes model change significantly, stock-based compensation expense may differ materially from what we have recorded in the current period.

Recently Issued Accounting Pronouncements

A description of recently issued accounting pronouncements that may potentially impact our financial position and results of operations is disclosed in Note 1 to our consolidated financial statements included in this Annual Report on Form 10-K.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

Not required.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.

The information required by this Item is set forth in our Consolidated Financial Statements and Notes thereto beginning at page F-1 of this Annual Report on Form 10-K.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE.

None.

ITEM 9A. CONTROLS AND PROCEDURES.

Disclosure Controls and Procedures

Evaluation of Disclosure Controls and Procedures

As required by Rule 13a-15(e) and 15d-15(e) under the Exchange Act, the Company, with the participation of management, including our Chief Executive Officer and Principal Financial Officer, evaluated the effectiveness of our disclosure controls and procedures (as defined in such rules) as of the end of the period covered by this report. Based on this evaluation, our Chief Executive Officer and Principal Financial Officer concluded that, at December 31, 2021, our disclosure controls and procedures were effective.

Disclosure controls and procedures are controls and other procedures that are designed to ensure that information required to be disclosed in our reports filed or submitted under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed in our reports filed under the Exchange Act is accumulated and communicated to our management, including our Chief Executive Officer and Principal Financial Officer, or persons performing similar functions, as appropriate, to allow timely decisions regarding required disclosure.

Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the control. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with the policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal controls during the quarter ended December 31, 2021, that materially affected, or are reasonably likely to materially affect, our internal controls over financial reporting

Management Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control system is 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 in the United States ("GAAP") and includes those policies and procedures that:

(i) pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the Company;

(ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, and that receipts and expenditures of the Company are being made only in accordance with authorization of management and directors of the Company; and

(iii) 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 its financial statements.

Because of its inherent limitations, a system of internal control over financial reporting can provide only reasonable assurance and may not prevent or detect misstatements. Further, because of changes in conditions, effectiveness of internal controls over financial reporting may vary over time. Our system contains self-monitoring mechanisms, and actions are taken to correct deficiencies as they are identified.

Our management conducted an evaluation of the effectiveness of the system of internal control over financial reporting based on the framework in *Internal Control—Integrated* Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (the 2013 COSO Framework). Based on the above evaluation, the Company's Chief Executive Officer and Principal Financial Officer have concluded that our internal control over financial reporting was effective as of December 31, 2021.

ITEM 9B. OTHER INFORMATION

None.

ITEM 9C. DISCLOSURES REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

None.

PART III

Item 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this item regarding our directors is incorporated by reference to the information in our definitive Proxy Statement (the "Proxy Statement") expected to be filed with the Securities and Exchange Commission within 120 days of December 31, 2021, in connection with our 2022 Annual Meeting of Stockholders under the heading "Election of Directors." The information required by this item regarding our Code of Conduct and Ethics in incorporated by reference to the information in the Proxy Statement, expected to be filed within 120 days of December 31, 2021, under the caption "Code of Conduct and Ethics." The information required by this item regarding our Governance Committee and Audit Committee is incorporated by reference to the information in the Proxy Statement, expected to be filed within 120 days of December 31, 2021, under the caption "Corporate Governance."

As of December 31, 2021, our executive officers were as follows:

Name	Position	Age
Andrey Semechkin	Co-Chairman and Chief Executive Officer	62
Russell Kern	Executive Vice President and Chief Scientific Officer	36
Sophia Garnette	Vice President, Legal Affairs & Operations and Principal Financial Officer	38

Andrey Semechkin, Ph.D., Co-Chairman and CEO, has been a Director of the Company since December 2008. Dr. Semechkin has served as our Chief Executive Officer since November 2009, and from December 2008 to November 2009 he served in other senior management positions with the Company. Dr. Semechkin is a specialist in system analysis, strategic planning and corporate management. He is a member of the Russian Academy of Sciences and has been Deputy Director of Institute of System Analysis since 2004. Dr. Semechkin was awarded the Russian Government Award in Science and Technology in 2006 and has written several scientific books. He has over 21 years' experience creating and managing businesses across different industries and scientific sectors.

Russell Kern, Ph.D, Executive Vice President, Chief Scientific Officer and CEO of Lifeline Skin Care Inc., became a Director in October 2008. Dr. Kern has served as our Chief Scientific officer since June 2013 and previously served since December 2008 in various scientific and management positions, including as Vice President Research and Development. Dr. Kern was trained in medical genetics, embryology and stem cell biology. He holds a Ph.D. degree in Human Physiology from the Russian Academy of Medical Sciences and has broad expertise in neuroscience, and was part of the team, along with scientists from the NYU Medical School that elucidated the physiological changes that occur in the brains of Parkinson's disease patients. Dr. Kern directs ISCO's R&D programs including stem cell derivation, differentiation and the pre-clinical and clinical evaluation of stem cell derived cells and tissue. He has developed a general method of deriving highly pure populations of neural stem cells and dopaminergic neurons from pluripotent stems cells that is novel, practical and suitable for use in a clinical setting. Dr. Kern is a well-known speaker on stem cell biology, including the use of stem cells for neurology and skin regeneration. He has more than 40 publications in the field of Parkinson's disease and stem cell biology and he is an active member of the American Academy of Neurology and the Society for Neuroscience. Dr. Russell Kern is the son of Dr. Andrey Semechkin, our Co-Chairman and Chief Executive Officer.

Sophia Garnette, J.D., Vice President, Legal Affairs & Operations and Principal Financial Officer, received her law degree from the University of Miami School of Law and has experience in various aspects of corporate and biotechnology law, regulatory affairs, project management, and business operations. After joining the Company in March 2011, she has held a variety of business and legal positions, including in-house counsel, advisor to the CEO, and Managing Director for Lifeline Skin Care. Ms. Garnette has announced her resignation from the Company, effective April 1, 2022.

Item 11. EXECUTIVE COMPENSATION

The information required by this item is incorporated by reference to the information in the Proxy Statement, expected to be filed within 120 days of December 31, 2021, under the caption "Executive Compensation."

Item 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this item is incorporated by reference to the information in the Proxy Statement, expected to be filed within 120 days of December 31, 2021, under the captions "Stock Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters" and "Equity Compensation Plan Information."

Item 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this item is incorporated by reference to the information in the Proxy Statement, expected to be filed within 120 days of December 31, 2021, under the captions "Related Person Transactions" and "Corporate Governance – Director Independence."

Item 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by this item is incorporated by reference to the information in the Proxy Statement, expected to be filed within 120 days of December 31, 2021, under the caption "Principal Accounting Fees and Services."

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a) Documents filed as part of this report.

1. **Financial Statements**

As part of this Annual report on Form 10-K, the consolidated financial statements are listed in the accompanying index to financial statements on page F-1.

2. **Financial Statement Schedules**

All schedules are omitted because they are not applicable or the required information is shown in the Financial Statements or notes thereto.

3. **Exhibit Index**

The following is a list of exhibits filed as part of this Annual Report on Form 10-K (including those incorporated herein by reference):

Exhibit Number	Exhibit Description
3.1	Certificate of Incorporation (incorporated by reference to Exhibit 3.4 of the Registrant's Form 10-SB filed on April 4, 2006).
3.2	Certificate of Amendment of Certificate of Incorporation (incorporated by reference to Exhibit 3.1 of the Registrant's Preliminary Information Statement on Form 14C filed on December 29, 2006).
3.3	Certificate of Amendment of Certificate of Incorporation (incorporated by reference to Exhibit 3.1 of the Registrant's Form 8-K filed on June 4, 2012).
3.4	Certificate of Amendment to Certificate of Incorporation (incorporated by reference to Exhibit 3.1 of the Registrant's Form 8-K filed on December 5, 2014).
3.5	Certificate of Amendment to Certificate of Incorporation (incorporated by reference to Exhibit 3.1 of the Registrant's Form 8-K filed on July 28, 2015).
3.6	Certificate of Amendment to Certificate of Incorporation (incorporated by reference to Exhibit 3.1 of the Registrant's Form 8-K filed on May 19, 2017).
3.7	Amended and Restated Bylaws of the Registrant (incorporated by reference to Exhibit 3.1 of the Registrant's Form 8-K filed on May 6, 2011).
4.1	Form of Specimen Common Stock Certificate (incorporated by reference to Exhibit 4.1 of the Registrant's Form 10-KSB filed on April 9, 2007).
4.2	Certification of Designation of Series B Preferred Stock (incorporated by reference to Exhibit 4.1 of the Registrant's Form 8-K filed on May 12, 2008).
4.3	Certification of Designation of Series D Preferred Stock (incorporated by reference to Exhibit 10.2 of the Registrant's Form 8-K filed on January 5, 2009).
4.4	Certificate of Designation of Series G Preferred Stock (incorporated by reference to Exhibit 3.1 of the Registrant's Form 8-K filed on March 14, 2012).
4.5	Certificate of Preferences, Rights and Limitations of Series I-2 Convertible Preferred Stock (incorporated by reference to Exhibit 3.2 of the Registrant's Form 8-K filed on March 10, 2016).
4.6	Description of the Registrant's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934 (incorporated by reference to Exhibit 4.7 of the Registrant's Form 10-K filed March 30, 2021).
10.1	2010 Equity Participation Plan (incorporated by reference to Exhibit 10.1 of the Registrant's Form 10-Q filed on August 12, 2020).

Exhibit Number	Exhibit Description
10.2	Amended and Restated Investors Rights Agreement dated March 9, 2012 (incorporated by reference to Exhibit 10.2 of the Registrant's Form 8-K filed on March 15, 2012).
10.3	Management Rights Letter dated March 9, 2012 (incorporated by reference to Exhibit 10.3 of the Registrant's Form 8-K filed on March 15, 2012).
10.4	Dividend Waiver Agreement dated October 12, 2012 (incorporated by reference to Exhibit 10.29 of the Registrant's Form S-1 filed on October 18, 2012).
10.5	Amended and Restated License Agreement with Advanced Cell Technology, Inc. dated February 7, 2013 (ACT IP) (incorporated by reference to Exhibit 10.1 of the Registrant's Amendment to Form 8-K filed on February 14, 2013)
10.6	Amended and Restated License Agreement with Advanced Cell Technology, Inc. (UMass IP) (incorporated by reference to Exhibit 10.3 of the Registrant's Amendment to Form 8-K filed on February 14, 2013).
10.7	Amended and Restated License Agreement dated February 7, 2013 with Advanced Cell Technology, Inc. (Infigen IP) (incorporated by reference to Exhibit 10.2 of the Registrant's Amendment to Form 8-K filed on February 14, 2013).
10.8	Amendment dated November 13, 2014 to Amended and Restated Investor Rights Agreement dated as of March 9, 2012 (incorporated by reference to Exhibit 10.1 of the Registrant's Form 8-K filed on November 18, 2014).
10.9	Waiver Agreement dated December 31, 2014 with holders of Series G Preferred Stock (incorporated by reference by Exhibit 10.32 of the Registrant's Form 10-K filed March 30, 2015).
10.10	Registration Rights Agreement, dated January 8, 2016, by and between International Stem Cell Corporation and Andrey Semechkin (incorporated by reference to Exhibit 10.3 of the Registrant's Form 8-K filed on January 12, 2016).
10.11	Form of Registration Rights Agreement (incorporated by reference to Exhibit 10.2 of the Registrant's Form 8-K filed on March 10, 2016).
10.12*	Lease Agreement dated October 26, 2021
10.13*	Lease Agreement dated November 30, 2021
10.14*	Co-Tenant Agreement dated December 15, 2021
10.15	Form of Note issued on March 1, 2022 (incorporated by reference to Exhibit 10.1 of the Registrant's Form 8-K filed on March 3, 2022).
21.1	Subsidiaries of the Registrant (incorporated by reference to Exhibit 21.1 of the Registrant's Form 10-K filed on March 30, 2016).
23.1*	Consent of BDO USA, LLP
31.1*	Rule 13a-14(a)/15d-14(a) Certification of Chief Executive Officer
31.2*	Rule 13a-14(a)/15d-14(a) Certification of Chief Financial Officer
32.1*	Section 1350 Certification of Chief Executive Officer
32.2*	Section 1350 Certification of Chief Financial Officer
101.INS*	Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
101.SCH*	Inline XBRL Taxonomy Extension Schema
101.CAL*	Inline XBRL Taxonomy Extension Calculation Linkbase
101.DEF*	Inline XBRL Taxonomy Definition Linkbase Document
101.LAB*	Inline XBRL Taxonomy Extension Label Linkbase
101.PRE*	Inline XBRL Taxonomy Extension Presentation Linkbase
104*	Cover Page Interactive Data File (embedded within the Inline XBRL document)

* Filed herewith.
(c) Financial Statement Schedules. See Item 15(a) 2 above.

ITEM 16. FORM 10-K SUMMARY

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

INTERNATIONAL STEM CELL CORPORATION

By: /s/ ANDREY SEMECHKIN
Name: **Andrey Semechkin**
Title: **Chief Executive Officer**

Dated: March 29, 2022

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature:	Capacity:	Date:
/ S/ ANDREY SEMECHKIN **Andrey Semechkin**	Co-Chairman of the Board and Chief Executive Officer (Principal Executive Officer)	March 29, 2022
/ S/ SOPHIA GARNETTE **Sophia Garnette**	Vice President Legal Affairs and Operations (Principal Financial Officer)	March 29, 2022
/ S/ RUSSELL KERN **Russell Kern**	Executive VP and Chief Scientific Officer and Director	March 29, 2022
/ S/ DONALD A. WRIGHT **Donald A. Wright**	Co-Chairman of the Board	March 29, 2022
/ S/ PAUL V. MAIER **Paul V. Maier**	Director	March 29, 2022

International Stem Cell Corporation and Subsidiaries
Index to Consolidated Financial Statements

Report of Independent Registered Public Accounting Firm

Stockholders and Board of Directors
International Stem Cell Corporation
San Diego, California

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of International Stem Cell Corporation (the "Company") as of December 31, 2021 and 2020, the related consolidated statements of operations, changes in redeemable convertible preferred stock and stockholders' deficit, 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 at December 31, 2021 and 2020, 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.

Going Concern Uncertainty

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company has incurred recurring losses from operations that raise substantial doubt about its ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 1. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

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 Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of the critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing separate opinions on the critical audit matter or on the accounts or disclosures to which it relates

Inventory Valuation – Excess and Obsolete Inventory

As described in Note 1 to the consolidated financial statements, the Company reviews the components of its inventory on a periodic basis for excess and obsolescence and adjusts inventory to the lower of cost or net realizable value as necessary. The Lifeline Cell

Technology ("LCT") inventory has a long product life cycle,doesnot have a shelf life when frozenand future demand is uncertain. As such,management relies on historical sales to estimate future demand to establish a reserve for excess and obsolete LCT inventory.

We identified auditing the Company's estimate forLCTinventory reserve for excess and obsolete inventory as a critical audit matter.When estimating its inventory reserve for excess andobsolescence, the Companyuseshistorical sales data and inventory turnover rates. Auditing these elements involved especially challenging auditor judgment due to the uncertainty of future demand along with the nature and extent of audit effort required to address these matters.

The primary procedures we performed to address this critical audit matter included:

- Testing the completeness and accuracy ofthe calculation by (i) re-performing calculations including agreeing theunderlying data to relevant source reports, and (ii) testing the source reports used in the calculation by sampling recent transactions and agreeing sales and use movements to relevant source documents.
- Assessing the product life cycle assumptions by comparing the assumptions to historical inventory turnover rates and evaluating the impact that would result from a range of alternative assumptions.

/s/ BDO USA, LLP

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

San Diego, California
March 29, 2022

International Stem Cell Corporation and Subsidiaries
Consolidated Balance Sheets
(In thousands, except share and par value data)

	December 31, 2021	December 31, 2020
Assets		
Current assets:		
Cash	$ 171	$ 689
Accounts receivable, net	844	403
Inventory, net	1,184	917
Prepaid expenses and other current assets	135	174
Total current assets	2,334	2,183
Non-current inventory, net	372	371
Property and equipment, net	384	534
Intangible assets, net	949	1,262
Right-of-use assets	868	874
Deposits and other assets	39	63
Total assets	$ 4,946	$ 5,287
Liabilities, Redeemable Convertible Preferred Stock and Stockholders' Deficit		
Current liabilities:		
Accounts payable	$ 508	$ 360
Accrued liabilities	404	386
Operating lease liabilities, current	179	346
Advances	250	250
Related party note payable	2,943	—
Paycheck Protection Program loan, current	—	141
Total current liabilities	4,284	1,483
Related party note payable	—	2,475
Paycheck Protection Program loan, net of current portion	—	517
Operating lease liabilities, net of current portion	950	845
Total liabilities	5,234	5,320
Commitments and contingencies (Note 11)		
Series D redeemable convertible preferred stock, $0.001 par value; 50 shares authorized; 43 shares issued and outstanding; liquidation preference of $4,300 at December 31, 2021 and 2020	4,300	4,300
Stockholders' Deficit:		
Non-redeemable convertible preferred stock, $0.001 par value; 10,004,310 and 10,006,310 shares authorized, 5,254,310 and 5,255,124 shares issued and outstanding, liquidation preference of $9,766 and $10,565 at December 31, 2021 and December 31, 2020, respectively	5	5
Common stock, $0.001 par value; 120,000,000 shares authorized; 8,004,389 and 7,539,089 shares issued and outstanding at December 30, 2021 and 2020, respectively	8	8
Additional paid-in capital	105,413	104,769
Accumulated deficit	(110,014)	(109,115)
Total stockholders' deficit	(4,588)	(4,333)
Total liabilities, redeemable convertible preferred stock and stockholders' deficit	$ 4,946	$ 5,287

See accompanying notes to consolidated financial statements.

International Stem Cell Corporation and Subsidiaries
Consolidated Statements of Operations
(In thousands, except per share data)

	Years Ended December 31,	
	2021	**2020**
Product sales	$ 7,176	$ 7,128
Operating expenses:		
Cost of sales	2,935	2,781
General and administrative	4,084	4,422
Selling and marketing	1,383	1,755
Research and development	695	988
Total operating expenses	9,097	9,946
Loss from operations	(1,921)	(2,818)
Other income (expense):		
Gain on forgiveness of debt	1,137	—
Change in fair value of warrant liability	—	207
Interest expense	(128)	(113)
Other income, net	13	—
Total other income, net	1,022	94
Net loss	$ (899)	$ (2,724)
Net loss per common share, basic and diluted	$ (0.11)	$ (0.36)
Weighted-average common shares used to compute net loss per share, basic and diluted	7,833	7,539

See accompanying notes to consolidated financial statements.

International Stem Cell Corporation and Subsidiaries
Consolidated Statements of Changes in Redeemable Convertible Preferred Stock and Stockholders' Deficit
(In thousands)

	Series D Redeemable Convertible Preferred Stock		Non-redeemable Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount	Shares	Amount			
Balance at December 31, 2019	—	$ 4,300	5,255	$ 5	7,539	$ 8	$ 103,490	$ (106,391)	$ (2,888)
Stock-based compensation	—	—	—	—	—	—	1,279	—	1,279
Net loss	—	—	—	—	—	—	—	(2,724)	(2,724)
Balance at December 31, 2020	—	4,300	5,255	5	7,539	8	104,769	(109,115)	(4,333)
Conversion of Series I-1 preferred stock	—	—	(1)	—	465	—	—	—	-
Stock-based compensation	—	—	—	—	—	—	644	—	644
Net loss	—	—	—	—	—	—	—	(899)	(899)
Balance at December 31, 2021	—	$ 4,300	5,254	$ 5	8,004	$ 8	$ 105,413	$ (110,014)	$ (4,588)

See accompanying notes to consolidated financial statements.

International Stem Cell Corporation and Subsidiaries
Consolidated Statements of Cash Flows
(In thousands)

	Years Ended December 31,	
	2021	**2020**
Cash flows from operating activities		
Net loss	$ (899)	$ (2,724)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	262	253
Non-cash operating lease expense	289	265
Impairment of intangible assets	250	65
Stock-based compensation	644	1,279
Gain on forgiveness of debt	(1,137)	—
Interest expense on related party note payable	118	105
Change in fair value of warrant liability	—	(207)
Other non-cash operating activity	(1)	—
Changes in operating assets and liabilities:		
Accounts receivable	(441)	1,112
Inventory, net	(268)	316
Prepaid expenses and other current assets	39	33
Deposits and other assets	24	27
Accounts payable	148	(294)
Accrued liabilities	17	(256)
Operating lease liabilities	(342)	(315)
Net cash used in operating activities	(1,297)	(341)
Cash flows from investing activities		
Purchases of property and equipment	(23)	(28)
Payments for patent licenses	(22)	(80)
Net cash used in investing activities	(45)	(108)
Cash flows from financing activities		
Proceeds from Paycheck Protection Program loans	474	654
Proceeds from note payable from a related party	350	—
Net cash provided by financing activities	824	654
Net increase (decrease) in cash	(518)	205
Cash, beginning of period	689	484
Cash, end of period	$ 171	$ 689
Supplemental disclosure of cash flow information:		
Cash paid for interest	$ 5	$ 5
Supplemental disclosure of non-cash investing and financing activities:		
Gain on forgiveness of debt	$ 1,137	$ —
Right-of-use assets obtained in exchange for operating lease liabilities	$ 479	$ 421
Right-of-use assets reduction related to operating lease termination	$ 196	$ —
Patent license costs included in accrued liabilities	$ 6	$ 3

See accompanying notes to consolidated financial statements.

1. Description of Business and Summary of Significant Accounting Policies

Description of Business

International Stem Cell Corporation (the "Company") was organized in Delaware in June 2005 and is publicly traded on the OTCQX under the symbol "ISCO". The Company is primarily a research and development company, for the therapeutic market, which has focused on advancing potential clinical applications of human parthenogenetic stem cells ("hpSCs") for the treatment of various diseases of the central nervous system and liver diseases. The Company has the following wholly-owned subsidiaries:

- Lifeline Cell Technology, LLC ("LCT") – for the biomedical market, develops, manufactures and commercializes primary human cell research products including over 200 human cell culture products, including frozen human "primary" cells and the reagents (called "media") needed to grow, maintain and differentiate the cells;
- Lifeline Skin Care, Inc. ("LSC") – for the anti-aging market, develops, manufactures and markets a category of anti-aging skin care products based on the Company's proprietary parthenogenetic stem cell technology and small molecule technology;
- Cyto Therapeutics Pty. Ltd. ("Cyto Therapeutics") – performs research and development ("R&D") for the therapeutic market and is currently conducting clinical trials in Australia for the use of ISC-hpNSC® in the treatment of Parkinson's disease.

COVID-19 Pandemic

The COVID-19 pandemic has caused business disruptions in the Company's business globally. The Company's consolidated financial statements reflect judgments and estimates that could change in the future as a result of the COVID-19 pandemic. As of the date of this report, the Company expects the COVID-19 pandemic will continue to impact its business, financial condition, liquidity, and future results of operations. The full extent to which the COVID-19 pandemic will impact the Company remains uncertain and ultimately will be dictated by the length and severity of the pandemic, as well as the economic recovery and federal, state and local government actions taken in response. The Company is continuing to monitor the impact of COVID-19 on the Company's operations, workforce, suppliers, customers and industry.

Liquidity and Going Concern

The Company had an accumulated deficit of approximately $110.0 million as of December 31, 2021 and has, on an annual basis, incurred net losses and negative operating cash flows since inception. The Company has had no revenue from its principal operations in therapeutic and clinical product development through research and development efforts. Unless the Company obtains additional financing, the Company does not have sufficient cash on hand to sustain operations for at least through one year from the issuance date of these consolidated financial statements.

There can be no assurance that the Company will be successful in maintaining normal operating cash flow or obtaining additional funding. These circumstances raise substantial doubt about the Company's ability to continue as a going concern. For the foreseeable future, the Company's ability to continue its operations is dependent upon its ability to obtain additional financing. The accompanying consolidated financial statements do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets or the amounts and classifications of liabilities that may result from the outcome of the uncertainty concerning the Company's ability to continue as a going concern.

The Company continues to evaluate various financing sources and options to raise working capital to help fund current research and development programs and operations. The Company will need to obtain significant additional funding from sources, including debt and/or equity financing, license arrangements, grants and/or collaborative research arrangements to sustain its operations and develop products.

The timing and degree of any future capital requirements will depend on many factors, including:

- the accuracy of the assumptions underlying the estimates for capital needs in 2022 and beyond;
- the extent that revenues from sales of LSC and LCT products cover the related costs and provide capital;
- scientific progress in research and development programs;

- the magnitude and scope of the Company's research and development programs and its ability to establish, enforce and maintain strategic arrangements for research, development, clinical testing, manufacturing and marketing;
- the progress with preclinical development and clinical trials;
- the extent to which third party interest in Company's research and commercial products can be realized through effective partnerships;
- the time and costs involved in obtaining regulatory approvals;
- the costs involved in preparing, filing, prosecuting, maintaining, defending and enforcing patent claims;
- the number and type of product candidates that the Company decides to pursue; and
- the development of major public health concerns, including COVID-19 or other pandemics arising globally, and the current and future impact that such concerns may have on the Company's operations and funding requirements.

Additional debt financing may be expensive and require the Company to pledge all or a substantial portion of its assets. If additional funds are obtained through arrangements with collaborative partners, these arrangements may require the Company to relinquish rights to some of its technologies, product candidates or products that the Company would otherwise seek to develop and commercialize on its own. Furthermore, if sufficient capital is not available, the Company may be required to delay, reduce the scope of or eliminate one or more of its product initiatives. The Company's failure to raise capital or enter into applicable arrangements when needed would have a negative impact on its financial condition.

Principles of Consolidation and Foreign Currency Transactions

The consolidated financial statements include the accounts of International Stem Cell Corporation and its subsidiaries. All intercompany balances and transactions have been eliminated in consolidation. The functional currency of the Company and its subsidiaries, including its wholly-owned Australian subsidiary, Cyto Therapeutics, is the U.S. dollar. Assets and liabilities that are not denominated in the functional currency are remeasured into U.S. dollars at foreign currency exchange rates in effect at the respective balance sheet dates. Revenue and expenses are translated at the average rate in effect on the date of the transaction. Net realized and unrealized gains and losses from foreign currency transactions and remeasurement are reported in general and administrative expense in the accompanying consolidated statements of operations and were not material for the periods presented.

Use of Estimates

The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the accompanying consolidated financial statements. Significant estimates include patent life (remaining legal life versus remaining useful life), allowance for excess and obsolete inventories, and stock option awards using the Black-Scholes option valuation model. Actual results could differ from those estimates.

Segments

The Company's chief operating decision-maker reviews financial information presented on a consolidated basis, accompanied by disaggregated information by each reportable company's statement of operations. The Company operates the business on the basis of three reporting segments, the parent company and two business units: ISCO – therapeutic market; LCT – biomedical market, and; LSC – anti-aging market.

Inventory

Inventory is accounted for using the average cost and first-in, first-out ("FIFO") methods for LCT cell culture media and reagents, average cost and specific identification methods for LSC products, and specific identification method for other LCT products. Inventory balances are stated at the lower of cost or net realizable value. Laboratory supplies used in the research and development process are expensed as consumed. LCT's inventory has a long product life cycle, does not have a shelf life when frozen, and future demand is uncertain. As such, at each reporting period, the Company estimates its reserve for allowance for excess and obsolete inventory using historical sales data and inventory turnover rates. The establishment of a reserve for excess and obsolete inventory establishes a new cost basis in the inventory. If the Company is able to sell such inventory, any related reserves would be reduced in the period of sale. The value of the inventory that is not expected to be sold within one year of the current reporting period is classified as non-current inventory on the accompanying consolidated balance sheets.

Accounts Receivable

Trade accounts receivable are recorded at the net invoice value and are not interest bearing. Accounts receivable primarily consist of trade accounts receivable from the sales of LCT's products, timing of cash receipts by the Company related to LSC credit card sales to customers, as well as LSC trade receivable amounts related to spa and distributor sales. The Company considers receivables past due based on the contractual payment terms. The Company reviews its exposure to accounts receivable and reserves specific amounts if collectability is no longer reasonably assured. The Company recorded an allowance for doubtful accounts of $3 thousand and $12 thousand as of December 31, 2021 and December 31, 2020, respectively.

Advances

In June 2008, the Company entered into an agreement with BioTime, Inc. ("BioTime"), whereby BioTime paid an advance of $250 thousand to LCT to produce, make, and distribute certain products. The $250 thousand advance will be paid down with the first $250 thousand of net revenues that otherwise would be allocated to LCT under the agreement. As of December 31, 2021, no revenues were realized and attributable to BioTime under this agreement.

Property and Equipment

Property and equipment are stated at cost. The provision for depreciation and amortization is computed using the straight-line method over the estimated useful lives of the assets, which are generally three to five years. Leasehold improvements are capitalized and amortized over the shorter of the remaining term of the lease or the estimated life of the assets.

Intangible Assets

Intangible assets consist of acquired patent licenses and capitalized legal fees related to the acquisition, filing, maintenance, and defense of patents and trademarks. Amortization begins once the patent is issued by the appropriate authoritative bodies. In the period in which a patent application is rejected or efforts to pursue the patent are abandoned, all the related accumulated costs are expensed. Patents and other intangible assets are amortized on a straight-line basis over the shorter of the useful life of the underlying patent, which is generally 15 years, or when the intangible asset is rejected or abandoned. All amortization expense and impairment charges related to intangible assets are included in general and administrative expense in the accompanying consolidated statements of operations.

Leases

The Company determines if an arrangement is a lease at inception. Operating leases are included in right-of-use assets, operating lease obligations, current, and operating lease obligations, net of current portion, on the Company's consolidated balance sheets.

Right-of-use assets and lease liabilities are recognized at the lease commencement date based on the present value of future minimum lease payments over the lease term. As the Company's leases do not provide an implicit rate, the Company uses a discount rate based on its estimated incremental borrowing rate to determine the right-of-use asset and operating lease liabilities to be recognized. The Company determines its incremental borrowing rate based on the terms and lease payments of its operating leases and what it would normally pay to borrow, on a collateralized basis, over similar terms for an amount equal to the lease payments. Operating lease expense is recognized on a straight-line basis over the lease term. In addition, the Company does not separate lease components from non-lease components.

Long-Lived Asset Impairment

The Company reviews long-lived assets for impairment when events or changes in circumstances ("triggering event") indicate that the carrying value of an asset or group of assets may not be recovered. If a triggering event is determined to have occurred, the carrying value of an asset or group of assets is compared to the future undiscounted cash flows expected to be generated by the asset or group of assets. If the carrying value exceeds the undiscounted cash flows of the asset or group of assets, then impairment exists. Fair value is generally determined using the asset's expected future discounted cash flows or market value, if readily determinable.

Revenue Recognition

The Company's revenue consists primarily of sales of products from its two revenue-generating operating segments, the biomedical products market and anti-aging products market. The biomedical market segment markets and sells primary human cell research products with two product categories, cells and media, which are sold both domestically within the United States and internationally. The anti-aging market segment markets and sells a line of skincare products sold through two sales channels: ecommerce and professional. The

ecommerce channel sells direct to customers through online orders, while professional sales are to spas, salons and other skincare providers.

The following table presents the Company's revenue disaggregated by segment, product and geography (in thousands):

Biomedical market:

	Year Ended December 31, 2021			
	Domestic	International	Total Revenues	% of Total Revenues
Biomedical products				
Cells	$ 801	$ 546	$ 1,347	23%
Media	3,935	654	4,589	77%
Total	$ 4,736	$ 1,200	$ 5,936	100%

	Year Ended December 31, 2020			
	Domestic	International	Total Revenues	% of Total Revenues
Biomedical products				
Cells	$ 838	$ 389	$ 1,227	22%
Media	3,903	447	4,350	78%
Other	17	—	17	—
Total	$ 4,758	$ 836	$ 5,594	100%

Anti-aging market:

	Year Ended December 31,			
	2021		2020	
	Total Revenues	% of Total Revenues	Total Revenues	% of Total Revenues
Skin care sales channels				
Ecommerce	$ 913	74%	$ 1,050	68%
Professional	327	26%	484	32%
Total	$ 1,240	100%	$ 1,534	100%

Contract terms for unit price, quantity, shipping and payment are governed by sales agreements, invoices or online order forms which the Company considers to be a customer's contract in all cases. The unit price is considered the observable stand-alone selling price for the arrangements. Any promotional or volume sales discounts are applied evenly to the units sold for purposes of calculating standalone selling price.

The Company recognizes revenue when its customer obtains control of the promised goods or services, in an amount that reflects the consideration which the entity expects to receive in exchange for those goods or services. Product sales generally consist of a single performance obligation that the Company satisfies at a point in time (i.e., upon delivery of the product).

For LSC products, online sales and professional sales are pre-paid through credit card charges. The Company sometimes extends 15, 30, or 60-day credit terms to select professional accounts. For biomedical products, standard payment terms for its customers are generally 30 days after the Company satisfies the performance obligation(s). For LSC, the Company honors a 30-day return policy, but historical returns have been minimal and as such, no estimated allowance for sales returns was recorded as of December 31, 2021 and 2020.

The Company elects to account for shipping and handling costs as activities to fulfill the promise to transfer the goods to a customer. As a result, no consideration is allocated to shipping and handling costs. Rather, the Company accrues the cost of shipping and handling upon shipment of the product, and all contract revenue (i.e., the transaction price) is recognized at the same time.

Variable Consideration

The Company records revenue from customers in an amount that reflects the transaction price it expects to be entitled to after transferring control of those goods or services. From time to time, the Company offers sales promotions on its skincare products such as discounts and free product offers. Variable consideration is estimated at contract inception only to the extent that it is probable that a significant reversal of revenue will not occur and updated at the end of each reporting period as additional information becomes available.

Contract Balances

The Company records a receivable when it has an unconditional right to receive consideration after a performance obligation is satisfied. As of December 31, 2021 and 2020, accounts receivable, net, totaled $844 thousand and $403 thousand, respectively. For the years ended December 31, 2021 and 2020, the Company did not incur material write-offs of its receivables.

Practical Expedients

The Company has elected the practical expedient to not determine whether contacts with customers contain significant financing components. The Company pays commissions on certain sales for its biomedical and anti-aging product markets once the customer payment has been received, which are accrued at the time of the sale. The Company generally expenses sales commissions when incurred because the amortization period would have been one year or less. These costs are recorded within sales and marketing expenses. In addition, the Company has elected to exclude sales taxes consideration from the determined transaction price.

Allowance for Sales Returns

The Company's anti-aging products have a 30-day product return guarantee; however, the Company determined that there is a low probability that returns will occur based on its historical rate of returns. Historically, returns have not been significant and are recognized as a reduction to current period revenue. As of December 31, 2021 and 2020, the Company recorded no allowance for sales returns.

Cost of Sales

Cost of sales consists primarily of salaries and benefits associated with employee efforts expended directly on the production of the Company's products, as well as related direct materials, general laboratory supplies and an allocation of overhead. Certain of the Company's licensed technology agreements may require the Company to pay royalties based on the future sale of the Company's products. Such royalties will be recorded as a component of cost of sales when incurred. Additionally, milestone payments or the amortization of license fees related to developed technologies used in the Company's products will be included as a component of cost of sales to the extent that such payments become due in the future.

Advertising

Adverting costs are expensed as incurred and included as a component of selling and marketing costs on the accompanying consolidated statements of operations. For the years ended December 31, 2021 and 2020, advertising costs were approximately $165,000 and $245,000, respectively.

Research and Development Costs

Research and development costs, which are expensed as incurred, primarily consist of salaries and benefits associated with research and development personnel, overhead and occupancy costs, contract services costs and amortization of license costs for technology used in research and development with alternative future uses. Research and development costs are net of research and development tax credits earned by Cyto Therapeutics, the Company's wholly-owned subsidiary based in Australia. The Australian Taxation Office provides for a refundable tax credit in the form of a cash refund equal to 43.5% of qualified research and development expenditures, not to exceed established thresholds. Since the refund does not depend on an entity's tax status or tax position, it is outside of the scope of accounting for income taxes and is treated as grant income. The Company recognized reductions to research and development costs of $113 thousand and $157 thousand for the years ended December 31, 2021 and 2020, respectively, attributable to the refundable tax credit.

Stock-Based Compensation

The cost of a stock-based award is measured at the grant date based on the estimated fair value of the award, and is recognized as expense on a straight-line basis, net of forfeitures which are recognized as incurred, over the requisite service period of the award. The

fair value of stock options is estimated using the Black-Scholes option valuation model, which requires the input of subjective assumptions, including price volatility of the underlying stock, risk-free interest rate, dividend yield, and expected life of the option. The fair value of restricted stock awards is based on the market value of the Company's common stock on the date of grant.

Fair Value of Financial Instruments

The Company believes that the carrying value of its cash, accounts receivables, accounts payable, accrued liabilities, Paycheck Protection Program loan and related party note payable as of December 31, 2021 and 2020 approximate their fair values because of the short-term nature of those instruments.

Fair Value Measurements

Fair value is defined as an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. As a basis for considering such assumptions, the accounting guidance establishes a three-tier fair value hierarchy, which prioritizes the inputs used in measuring fair value as follows:

Level 1: Observable inputs such as quoted prices in active markets.

Level 2: Inputs, other than the quoted prices in active markets that are observable either directly or indirectly.

Level 3: Unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions.

As of December 31, 2021, the Company had no financial assets or liabilities measured at fair value on a recurring basis. As of December 31, 2020, the Company had outstanding a warrant liability which was measured at fair value on a recurring basis. The fair value of the warrant liability was calculated using the Monte-Carlo simulation model, which required the use of certain estimates and, therefore, was deemed to be a level 3 liability within the three-tier fair value hierarchy. As of December 31, 2020, the fair value of the warrant liability was estimated to be zero, utilizing the following the assumptions: risk-free interest rate – 0.08%; volatility – 80.0%; term to expiration (in years) – 0.21, and; probability of subsequent financing – 0.0%.

Income Taxes

The Company uses the asset and liability method of accounting for income taxes. When the Company prepares its consolidated financial statements, it estimates income taxes based on the various jurisdictions and countries where it conducts business. This requires the Company to estimate current tax exposure and to assess temporary differences that result from differing treatments of certain items for tax and accounting purposes. Deferred income taxes are recognized based on the differences between the financial statement and income tax bases of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. The Company then assesses the likelihood that deferred tax assets will be realized. Valuation allowances are established, when it is more likely than not the deferred tax assets will not be realized. When the Company establishes a valuation allowance or increases this allowance in an accounting period, it records a corresponding tax expense in the consolidated statements of operations. The Company includes interest and penalties related to income taxes within its provision for income taxes.

Net Loss Per Share

Basic net loss per share attributable to common stockholders is calculated by dividing the net loss attributable to common stockholders by the weighted-average number of common shares outstanding during the period. Diluted net loss per share attributable to common stockholders is computed by dividing the net loss attributable to common stockholders by the weighted-average number of common stock equivalents outstanding for the period determined using the treasury-stock and if-converted methods. Potentially dilutive common stock equivalents are comprised of stock options, common stock warrants and convertible preferred stock. For the years ended December 31, 2021 and 2020, there was no difference in the number of shares used to calculate basic and diluted shares outstanding as the Company was in a net loss position.

For the years ended December 31, 2021 and 2020, the following common stock options, common stock warrants and convertible preferred stock were not included in the diluted net loss per share calculation because the effect would be anti-dilutive.

	Years Ended December 31,	
	2021	2020
Options outstanding	4,885,531	4,652,988
Common stock warrants outstanding	—	3,949,281
Redeemable convertible preferred stock	2,457,143	2,457,143
Non-redeemable convertible preferred stock	3,385,075	3,675,135
Total	10,727,749	14,734,547

Comprehensive Loss

Comprehensive loss includes all changes in stockholders' deficit except those resulting from investments by owners and distributions to owners. The Company did not have any items of comprehensive loss other than net loss from operations for the years ended December 31, 2021 and 2020.

Customer Concentrations

For the years ended December 31, 2021 and 2020, one major customer accounted for approximately 39% and 41%, respectively, of product sales. As of December 31, 2021 and 2020, the customer accounted for 62% and 55%, respectively, of accounts receivable, net. No other single customer accounted for more than 10% of product sales or accounts receivable, net, for the years ended.

Recently Issued Accounting Pronouncements

In June 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2016-13, *Financial Instruments— Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* ("ASU 2016-13"). The ASU introduced a new credit loss methodology, the Current Expected Credit Losses ("CECL") methodology, which requires earlier recognition of credit losses, while also providing additional transparency about credit risk. The CECL methodology utilizes a lifetime "expected credit loss" measurement objective for the recognition of credit losses for loans, held-to maturity debt securities, trade receivables and other receivables measured at amortized cost at the time the financial asset is originated or acquired. Subsequent to the issuance of ASU 2016-13, the FASB issued several additional ASUs to clarify implementation guidance, provide narrow-scope improvements and provide additional disclosure guidance. In November 2019, the FASB issued an amendment making this ASU effective for fiscal years beginning after December 15, 2022 for smaller reporting companies. The new standard will be effective for the Company on January 1, 2023 or at such earlier time where it is no longer a smaller reporting company. The Company is currently evaluating the potential impact that this standard may have on its consolidated financial statements and related disclosures.

In August 2020, the FASB issued ASU No. 2020-06, *Debt – Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging – Contracts in Entity's Own Equity (Subtopic 815-40)* ("ASU 2020-06"). ASU 2020-06 simplifies the accounting for convertible debt instruments by reducing the number of accounting models and the number of embedded features that could be recognized separately from the host contract. Consequently, more convertible debt instruments will be accounted for as a single liability measured at its amortized cost, as long as no other features require bifurcation and recognition as derivatives. ASU 2020-06 also requires use of the if-converted method in the diluted earnings per share calculation for convertible instruments. ASU 2020-06 is effective for fiscal years beginning after December 15, 2023, and interim periods within those fiscal years for smaller reporting companies, with early adoption permitted. The new standard will be effective for the Company on January 1, 2024 or at such earlier time where it is no longer a smaller reporting company. The Company is currently evaluating the potential impact that this standard may have on its consolidated financial statements and related disclosures.

In November 2021, the FASB issued ASU No. 2021-10, *Government Assistance (Topic 832): Disclosure by Business Entities about Government Assistance* ("ASU 2021-10"), which improves the transparency of government assistance received by certain business entities by requiring the disclosure of (1) the types of government assistance received; (2) the accounting for such assistance, and (3) the effect of the assistance on the business entity's financial statements. ASU 2021-10 is effective for fiscal years beginning after December 15, 2021, with early adoption permitted. The Company plans to adopt this standard on January 1, 2022, which is not expected to have an impact on its consolidated financial statements.

Recently Adopted Accounting Pronouncements

In December 2019, the FASB issued ASU No. 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes* ("ASU 2019-12"). ASU 2019-12 simplifies the accounting for income taxes by removing certain exceptions to the general principles in Topic 740. ASU 2019-12 also improves the consistent application, and the simplification, of other areas of Topic 740 by clarifying and amending existing guidance. ASU 2019-12 is effective for fiscal years beginning after December 15, 2020, and interim periods within

those fiscal years, with early adoption permitted. The Company adopted ASU 2019-12 on January 1, 2021. The adoption of this standard did not have a material impact on the Company's consolidated financial statements or related disclosures.

2. Inventory

The components of inventories are as follows (in thousands):

	As of December 31,	
	2021	2020
Raw materials	$ 592	$ 427
Work in process	507	481
Finished goods	983	991
	2,082	1,899
Less: allowance for inventory excess and obsolescence	(526)	(611)
Total current and non-current inventory, net	$ 1,556	$ 1,288
Inventory, net	$ 1,184	$ 917
Non-current inventory	372	371
Total current and non-current inventory, net	$ 1,556	$ 1,288

During the years ended December 31, 2021 and 2020, the Company disposed of obsolete inventory in the amount of $47 thousand and $131 thousand, respectively. The inventory had been fully reserved for and the write-off had no impact on the Company's consolidated statements of operations.

3. Property and Equipment

Property and equipment consist of the following (in thousands):

	As of December 31,	
	2021	2020
Machinery and equipment	$ 1,610	$ 1,661
Computer equipment and software	243	241
Office equipment	104	230
Leasehold improvements	549	1,303
Construction in progress	1	3
	2,507	3,438
Less: accumulated depreciation and amortization	(2,123)	(2,904)
Property and equipment, net	$ 384	$ 534

Depreciation and amortization expense for the years ended December 31, 2021 and 2020 was $171 thousand and $162 thousand, respectively. During the year ended December 31, 2021, the Company disposed of approximately $1.0 million in property and equipment that had been depreciated and amortized in full and had no impact on the accompanying consolidated statements of operations.

4. Intangible Assets

Intangible Assets consists of the following (in thousands):

	As of December 31,	
	2021	2020
Patents	$ 1,277	$ 2,286
Less: accumulated amortization	(403)	(1,099)
	874	1,187
Indefinite life logos and trademarks	75	75
Intangible assets, net	$ 949	$ 1,262

Amortization expense for the years ended December 31, 2021 and 2020 was $91 thousand. During the years ended December 31, 2021 and 2020, the Company fully impaired and abandoned certain patents that the Company concluded it would no

longer defend or incur additional costs to maintain. Impairment charges for the years ended December 31, 2021 and 2020 was $250 thousand and $65 thousand, respectively. The impairment charges, measured on a cost basis, related to abandonment of certain internally generated and licensed intellectual property in the Company's therapeutic market segment that was determined by management to have no future economic benefit.

The timing of approval of pending patent applications is uncertain and, therefore, are included in the thereafter period below until issued. Pending patents as of December 31, 2021 was $108 thousand. As of December 31, 2021, future amortization expense related to intangible assets subject to amortization is expected to be as follows (in thousands):

Years ending December 31,	
2022	78
2023	78
2024	78
2025	75
2026	72
Thereafter	493
Total	$ 874

5. Paycheck Protection Program Loan

In May 2020, the Company received a loan of $654 thousand from its lender under the Paycheck Protection Program ("First Draw Loan"). The Paycheck Protection Program ("PPP"), as amended, was established under the Coronavirus Aid, Relief, and Economic Security Act (the "CARES Act") and is administered by the U.S. Small Business Administration ("SBA"). The First Draw Loan has a two-year term and bears interest at a rate of 1% per annum. Principal and interest payments are deferred for ten months following the loan forgiveness period, which is defined as the 24-week period following the loan origination date, at which time the loan balance is payable in monthly installments unless the Company applies for, and receives, forgiveness in accordance with the CARES Act and the terms of the loan executed by the Company and its lender. As required by the CARES Act, the Company used the proceeds from the PPP Loan for payroll, healthcare benefits, rent and other qualifying expenses.

On March 2021, the Company received a loan of approximately $474 thousand from its lender under the PPP ("Second Draw Loan"). The Second Draw Loan has a five-year term and bears interest at a rate of 1% per annum. Principal and interest payments are deferred until August 2022, at which time the loan balance is payable in monthly installments unless the Company applies for, and receives, forgiveness in accordance with the CARES Act and the terms of the loan executed by the Company and its lender. The Second Draw Loan was used to help fund payroll, healthcare benefits, rent, worker protection costs related to COVID-19, certain supplier costs and other qualifying expenses.

In June 2021, the Company applied for and received forgiveness of its First Draw Loan in whole from the SBA and its lender. The amount of forgiveness totaled $661 thousand which consisted of unpaid principal and accrued interest.

In August 2021, the Company applied for and received forgiveness of its Second Draw Loan in whole from the SBA and its lender. The amount of forgiveness totaled $476 thousand, which consisted of unpaid principal and accrued interest. The Company recorded the forgiveness of the First Draw Loan and Second Draw Loan as a gain in other income (expense), net, on the accompanying consolidated statements of operations.

6. Convertible Preferred Stock

As of December 31, 2021 and 2020, the Company was authorized to issue 20,000,000 shares of preferred stock, $0.001 par value per share. The Company has designated 50 shares of Series D redeemable convertible preferred stock and as of December 31, 2021 and 2020, a total of 10,004,310 and 10,006,310 shares, respectively, of Series B, Series G, Series I-1 and Series I-2 non-redeemable convertible preferred stock. The Company's Series B, Series G, Series I-1 and Series I-2 non-redeemable convertible preferred stock has been classified as equity on the accompanying consolidated balance sheets.

During the year ended December 31, 2021, holders of all remaining shares of the Company's Series I-1 preferred stock converted 814 shares of issued and outstanding Series I-1 preferred stock into 465,300 shares of common stock of the Company. In June 2021, the Company filed a Certificate of Elimination for the Series I-1 convertible preferred stock with the Secretary of State of the State of Delaware. The Certificate of Elimination amended the provisions of the Certificate of Incorporation of the Company to eliminate the powers, designations, preferences, privileges and other rights of the Series I-1 preferred stock.

The authorized, issued and outstanding shares of non-redeemable convertible preferred stock as of December 31, 2021 consist of the following:

	Shares Authorized	Shares Issued and Outstanding	Liquidation Preference	Carrying Value
			(in thousands)	
Series B	5,000,000	250,000	$ 456	$ —
Series G	5,000,000	5,000,000	5,000	5
Series I-2	4,310	4,310	4,310	—
Total	10,004,310	5,254,310	$ 9,766	$ 5

The authorized, issued and outstanding shares of non-redeemable convertible preferred stock as of December 31, 2020 consist of the following:

	Shares Authorized	Shares Issued and Outstanding	Liquidation Preference	Carrying Value
			(in thousands)	
Series B	5,000,000	250,000	$ 441	$ —
Series G	5,000,000	5,000,000	5,000	5
Series I-1	2,000	814	814	—
Series I-2	4,310	4,310	4,310	—
Total	10,006,310	5,255,124	$ 10,565	$ 5

The significant rights and preferences of the Company's convertible preferred stock are as follows:

Dividends

Holders of the Company's convertible preferred stock are entitled to participating dividends with common stock when and if declared by the Company's board of directors. No dividends have been declared as of December 31, 2021.

Liquidation

Liquidation preference among classes of preferred shares is first with Series D with priority, followed by Series G, Series B and Series I-2 on the proceeds from any sale or liquidation of the Company in an amount equal to the purchase price of shares plus (in the case of the Series B) an amount equal to 1% of the Series B original issue price for every two calendar months from February 1, 2008. Following the satisfaction of the liquidation preferences, all shares of common stock participate in any remaining distribution.

Conversion

The conversion rates of the Series B, Series D, and Series I-2 are subject to anti-dilution adjustments whereby, subject to specified exceptions, if the Company issues equity securities or securities convertible into equity at a price below the applicable conversion price of the Series B, Series D, and Series I-2, the conversion price of each such series shall be adjusted downward to equal the price of the new securities. The conversion rate of the Series G is subject to a weighted-average adjustment in the event of the issuance of additional shares of common stock below the conversion price, subject to specified exceptions. Upon the occurrence of an event that triggers a down round protection, the Company will recognize the value of the down round as a beneficial conversion discount. The conversion price of the Series I-2 are also subject to certain resets as set forth in the Certificates of Designation, including a reverse stock split.

The following table summarizes the number of shares of common stock into which each share of convertible preferred stock can be converted as of December 31, 2021:

	Initial Conversion Price	Current Conversion Price	Conversion Ratio to Common Stock
Series B	$ 75.00	$ 1.08	0.9259260
Series D	$ 37.50	$ 1.75	57,142.8571
Series G	$ 60.00	$ 9.69	0.103099
Series I-2	$ 1.75	$ 1.75	571.428571

Voting

The holders of Series B, Series D, and Series G are entitled to one vote for each share of common stock into which it would convert. As long as there are at least 10 shares of Series D outstanding, the holders of Series D have (i) the right to nominate and elect two members of the Board of Directors, and (ii) the right to approve specified significant transactions affecting the Company. As long as there are at least 1,000,000 shares of Series G outstanding, the holders of Series G have the initial right to propose the nomination of two members of the Board, at least one of which such nominees shall be subject to the approval of the Company's independent directors, for election by the stockholders at the Company's next annual meeting of stockholders, or, elected by the full board of directors to fill a vacancy, as the case may be. At least one of the two directors nominated by holders of the Series G shall be independent. The holder of Series I-2 has no voting rights, except as required by law.

Series D Preferred Stock Redemption

The Company's Series D redeemable convertible preferred stock contains a contingent redemption feature that is not solely within the Company's control. Accordingly, the Series D redeemable convertible preferred stock is classified in temporary equity (outside of permanent equity) on the accompanying consolidated balance sheets.

7. Stockholders' Deficit

Common Stock

As of December 31, 2021, the Company was authorized to issue 120,000,000 shares of common stock, $0.001 par value per share.

Common Stock Warrants

In October 2014 and March 2016, the Company issued warrants exercisable for 62,047 and 11,159,995 shares of common stock, respectively, at an exercise price of $1.75 per share to certain placement agents and existing investors in connection with financing arrangements. In April 2020, the common stock warrants issued in October 2014 expired unexercised. The common stock warrants issued in March 2016 expired unexercised on March 15, 2021. As of December 31, 2020, 3,948,569 common stock warrants issued in March 2016 were outstanding.

Common Stock Reserved for Future Issuance

As of December 31, 2021, the Company had shares of common stock reserved for future issuance as follows:

Options outstanding	5,373,203
Common stock available for issuance under the 2010 Plan	4,161,189
Redeemable convertible preferred stock	2,457,143
Non-redeemable convertible preferred stock	3,209,835
Total	15,201,370

8. Equity Incentive Plans

The Company adopted the 2006 Equity Participation Plan (as amended the "2006 Plan"), which provides for the grant of stock options, restricted stock and other equity-based awards. Awards for up to 100,000 shares may be granted to employees, directors and consultants under this Plan. The options granted under the 2006 Plan may be either qualified or non-qualified options. Options may be granted with different vesting terms and expire no later than 10 years from the date of grant. The 2006 Plan expired on November 16, 2016. Options and other equity-based awards granted prior to the expiration of the 2006 Plan will continue in effect until the option or award is exercised or terminates pursuant to its terms. No new awards may be granted under the 2006 Plan following its expiration.

In April 2010, the Company adopted the 2010 Equity Participation Plan, as amended (the "2010 Plan"), which provides for the grant of stock options, restricted stock and other equity-based awards. Awards for up to 9,700,000 shares may be granted to employees, directors and consultants under the 2010 Plan. The options granted under the 2010 Plan may be either qualified or non-qualified options. Options may be granted with different vesting terms and expire no later than 10 years from the date of grant. In June 2020, the Company amended the 2010 Plan to extend the term of the 2010 Plan until March 2030. No other material provisions were amended.

Stock Options

Transactions involving stock options issued to employees, directors and consultants under the 2006 Plan and the 2010 Plan are summarized below. Options issued have a maximum life of 10 years. The following tables summarize the changes in options outstanding and the related exercise prices for the Company's common stock options issued:

	Number of Outstanding Options	Weighted-Average Exercise	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding at December 31, 2020	4,255,371	$ 3.41		
Granted	1,761,962	$ 0.39		
Forfeited or canceled	(622,088)	$ 2.14		
Expired	(22,042)	$ 284.00		
Outstanding at December 31, 2021	5,373,203	$ 1.42	7.31	$ 146
Vested and expected to vest at December 31, 2021	5,187,332	$ 1.46	7.23	$ 131
Exercisable at December 31, 2021	3,980,138	$ 1.77	6.58	$ 34

Restricted Stock Awards

Restricted stock awards are grants that entitle the holder to acquire shares of common stock at zero or a fixed price, which is typically nominal. The Company accounts for the restricted stock awards as issued and outstanding common stock, even though the shares covered by a restricted stock award cannot be sold, pledged, or otherwise disposed of until the award vests and any unvested shares may be reacquired by the Company for the original purchase price following the awardee's termination of service.

The fair value of restricted stock awards is based on the market value of the common stock on the date of grant. For the years ended December 31, 2021 and 2020, no restricted stock awards were awarded or vested. As of December 31, 2021, there was no unrecognized compensation costs related to unvested awards.

Stock-Based Compensation

The weighted-average assumptions used in the Black-Scholes option valuation model to determine the fair value of stock options grants for the years ended December 31, 2021 and 2020 were as follows:

	Years Ended December 31,	
	2021	2020
Risk-free interest rate	0.89%	0.37%
Expected stock price volatility	83.90%	88.82%
Expected dividend yield	0%	0%
Expected life of options (in years)	5.67	5.36

Total stock-based compensation expense for the years ended December 31, 2021 and 2020 was comprised of the following (in thousands):

	Years Ended December 31,	
	2021	2020
Cost of sales	$ 21	$ 87
Research and development	46	135
Selling and marketing	32	78
General and administrative	545	979
Total	$ 644	$ 1,279

Unrecognized compensation expense related to stock options as of December 31, 2021 was $330 thousand, which is expected to be recognized over a weighted-average period of approximately 1.93 years. Unrecognized compensation expense related to stock options as of December 31, 2020 was $604 thousand, which was expected to be recognized over a weighted-average period of less than one year.

9. Related Party Transactions

In 2011, the Company executed an operating lease for its corporate offices with S Real Estate Holdings LLC. S Real Estate Holdings LLC is owned by Dr. Russell Kern, the Company's Executive Vice President and Chief Scientific Officer. The lease agreement was negotiated at arm's length and was reviewed by the Company's outside legal counsel. The terms of the lease were reviewed by a committee of independent directors, and the Company believes that, in total, those terms are at least as favorable to the Company as could be obtained for comparable facilities from an unaffiliated party. In March 2017, the Company signed an amendment to the lease agreement to extend the term of the lease until 2020 and include annual adjustments to the monthly lease payments. In March 2020, the Company entered into an amendment to the lease agreement. The amendment extended the term of the lease for three years (until February 28, 2023) and provided for a 2% increase in monthly rent. For the years ended December 31, 2021 and 2020, the Company recorded $157 thousand and $169 thousand, respectively, in operating lease cost that was related to the facility lease arrangement with related parties.

Between March 6, 2018 and December 17, 2019, to obtain funding for working capital purposes, the Company borrowed a total of $2.3 million from Dr. Semechkin and issued an unsecured, non-convertible promissory note in the principal amount of $2.3 million (the "Note") to Dr. Semechkin. The outstanding principal amount under the Note accrued interest at a rate of 4.5% per annum. The outstanding principal and accrued interest on the Note was due and payable on January 15, 2021 and could be pre-paid without penalty at any time.

On January 15, 2021, the Company and Dr. Semechkin agreed to extend the maturity date of the New Note to January 15, 2022. No other terms of the Note were modified as a result of the extension.

On March 5, 2021, to obtain additional funding for working capital purposes, the Company further modified the Note and issued an unsecured, non-convertible promissory note (the "New Note") in the amount of $2.650 million to Dr. Semechkin. In exchange, Dr. Semechkin surrendered the Note and provided additional funding in the amount of $350 thousand to the Company. The outstanding principal amount under the New Note accrues interest at a rate of 4.5% per annum. The outstanding principal and accrued interest on the New Note is due and payable on January 15, 2022 and may be pre-paid by the Company without penalty at any time.

On October 26, 2021, the Company and S Real Estate Holdings, LLC jointly entered into a lease agreement with Rehco Holdings, LLC (the "Lease"), for the purpose of establishing a new corporate headquarters, including corporate, R&D, and manufacturing operations. The Lease was personally guaranteed by the Dr. Russell Kern, the Company's Executive Vice President and Chief Scientific Officer.

On December 15, 2021, the Company and S Real Estate Holdings LLC entered into a co-tenant agreement, whereby the Company and S Real Estate Holdings LLC agreed to allocate portions of the base rent and variable charges, including insurance, maintenance costs, taxes and operating expenses, between the parties. During the term of the Lease, the Company will be liable for 40% of all costs incurred in connection with the Lease, while S Real Estate Holdings LLC will be liable for the remaining 60%.

On December 27, 2021, the Company and S Real Estate Holdings LLC mutually agreed to terminate the operating lease for its corporate offices for the purpose of consolidating its operations to its new corporate headquarters (refer to Note 11 – Commitments and Contingencies, for further information). Pursuant to the termination agreement, the Company surrendered the leased premises effective December 31, 2021, and no termination penalties were incurred by the Company. In addition, S Real Estate Holdings LLC released the Company of its obligation to pay base rent for the month of December 2021.

10. Income Taxes

As of December 31, 2021, the Company had available net operating loss carryforwards for federal income tax reporting purposes of approximately $74.9 million and for state income tax reporting purposes of approximately $73.0 million, which may be applied against future taxable income and will expire in various years through 2037. However, any net operating loss carryforwards generated in 2018 and future years will not expire and are carried forward indefinitely. The increase in federal operating loss carryforwards for the year ended December 31, 2021 was approximately $1.9 million.

The amount of and ultimate realization of the benefits from the operating loss carryforwards for income tax purposes is dependent, in part, upon the tax laws in effect, the future earnings of the Company, and other future events, the effects of which cannot be determined at this time. Because of the uncertainty surrounding the realization of the loss carryforwards, the Company has established a valuation allowance equal to the tax effect of the loss carryforwards, research and development credits, and accruals; therefore, no net deferred

tax asset has been recognized. A reconciliation of the statutory federal income tax rate and the effective income tax rate for the years ended December 31, 2021 and 2020 was as follows:

	Years Ended December 31,	
	2021	2020
Statutory federal income tax rate	21.0%	21.0%
Permanent items	(7.0%)	(2.8%)
State income taxes, net of federal taxes	(0.2%)	(0.1%)
Foreign	(0.8%)	(0.3%)
Change in valuation allowance	46.6%	(19.1%)
Forgiveness of PPP loans	26.7%	0.0%
Stock options	(83.8%)	(5.4%)
Lease accounting	(0.1%)	(0.1%)
Other	(2.4%)	6.8%
Effective income tax rate	0.0%	0.0%

The Company files income tax returns in the U.S. federal jurisdiction and various states. The Company is no longer subject to U.S. federal, state and local income tax examinations by tax authorities for years before 2017. The Company does not have any material uncertain tax positions as of December 31, 2021 and 2020. The Company does not believe it is reasonably possible that the total amount of unrecognized tax benefits as of December 31, 2021 will materially change in the next 12 months.

The Company may be subject to IRC Code Section 382 and 383, which could limit the amount of the net operating loss and tax credit carryovers that can be used in future years. The Company has not completed a study to assess whether an ownership change has occurred, as defined by IRC Sections 382 and 383, or whether there have been ownership changes since the Company's formation due to the complexity and cost associated with such study, and the fact that there may be additional such ownership changes in the future. The Company estimates that if such a change did occur, the federal and state net operating loss carryforwards and research and development credit carryforwards that can be utilized in the future would be significantly limited. There can be no assurance that the Company will ever be able to realize the benefit of some or all of the federal and state loss carryforwards or credit carryforwards, either due to ongoing operating losses or due to ownership change limitations.

The CARES Act provides sweeping tax changes in response to the COVID-19 pandemic. Some of the more significant provisions are removal of certain limitations on utilization of net operating losses, increasing the loss carryback period for certain losses to five years, and increasing the ability to deduct interest expense, as well as amending certain provisions of the previously enacted Tax Cuts and Jobs Act. As of December 31, 2021, the Company has not recorded any material adjustments to its income tax provision related to the provisions within the CARES Act. The Company will continue to analyze the impact that the CARES Act will have, if any, on its financial position, results of operations or cash flows.

Significant components of deferred tax assets and liabilities are as follows (in thousands):

	December 31, 2021	December 31, 2020
Net operating loss carryforwards	$ 19,603	$ 19,152
Stock-based compensation	1,153	1,936
Research and development tax credit	2,899	2,899
Other	235	397
Non-current deferred tax assets	23,890	24,384
Valuation allowance	(23,890)	(24,384)
Net deferred tax assets	$ —	$ —

11. Commitments and Contingencies

Leases

As of December 31, 2021, the Company has three operating leases for real estate in California and Maryland:

- San Diego, California – corporate headquarters, including corporate, R&D, and manufacturing operations, with a term date of December 2026, jointly leased with a related party (refer to Note 9 – Related Party Transactions, for further information);

- San Diego, California – supplemental office space adjacent to the Company's corporate headquarters with a term date of December 2026; and
- Frederick, Maryland – mixed laboratory and administrative space with a term date of November 2025.

In October 2021, the Company entered into an operating lease for its new corporate headquarters. The lease commenced on November 1, 2021 and expires on December 31, 2026. At commencement, base rent due under the lease was approximately $11 thousand and increases approximately 3.5% per annum over the lease term. The lease is subject to additional variable charges, including insurance, maintenance costs, taxes and operating expenses. Base rent and additional variable charges are shared between the Company and S Real Estate Holdings LLC, a related party, pursuant to a co-tenant agreement between the parties (refer to Note 9 – Related Party Transactions, for further information). In addition, base rent for months two through five of the lease term were abated by 50%. At lease commencement, the Company recognized a right-of-use asset and lease liabilities of approximately $232 thousand.

In November 2021, the Company entered into an operating lease for supplemental office space adjacent to its new corporate headquarters with the same landlord. The lease commenced on December 1, 2021 and expires on December 31, 2026 and is not subject to the co-tenant agreement with S Real Estate Holdings, LLC. At commencement, base rent due under the supplemental office lease was approximately $4 thousand per month and increases at a fixed amount per annum over the lease term. At lease commencement, the Company recognized a right-of-use asset and lease liabilities of $247 thousand.

The Company's operating leases for real estate are subject to additional variable charges for common area maintenance and other variable costs, and do not include an option to extend the lease term. As of December 31, 2021, total right-of-use assets and operating lease liabilities were approximately $868 thousand and $1.1 million, respectively. As of December 31, 2021, the Company had no finance leases.

Information related to the Company's right-of-use assets and related lease liabilities were as follows (in thousands):

	Years Ended	
	2021	2020
Operating lease costs	$ 456	$ 464
Short-term lease costs	1	7
Variable lease costs	225	211
Total lease costs	$ 682	$ 682
Operating cash used for operating leases	508	509
Right-of-use asset obtained in exchange for operating lease liability	479	421
Weighted-average remaining lease term (years)	4.42	3.90
Weighted-average discount rate	13.48%	17.05%

Maturities of lease liabilities as of December 31, 2021 were as follows (in thousands):

Years ending December 31,	
2022	$ 317
2023	338
2024	349
2025	360
2026	119
Total minimum lease payments	1,483
Less: imputed interest	(354)
Total future minimum lease payments	1,129
Less: operating lease liabilities, current	(179)
Operating lease liabilities, net of current portion	$ 950

Licensed Patents

The Company has a minimum annual license fee of $75 thousand payable in two installments per year to Astellas Pharma pursuant to the amended UMass IP license agreement. The license agreement with Astellas Pharma may be terminated by the Company at any time with a 30-day notice.

12. Segments and Geographic Information

The Company operates the business on the basis of three reporting segments, the parent company and two business units: ISCO – therapeutic market; LCT – biomedical market, and; LSC – anti-aging market.

The Company does not measure the performance of its segments on any asset-based metrics. Therefore, segment information is presented only for operating income (loss). Revenues, expenses and operating income (loss) by market segment were as follows (in thousands):

	Years Ended December 31,	
	2021	2020
Revenues:		
Biomedical market	$ 5,936	$ 5,594
Anti-aging market	1,240	1,534
Total revenues	7,176	7,128
Operating expenses:		
Therapeutic market	3,267	3,410
Biomedical market	4,346	4,785
Anti-aging market	1,484	1,751
Total operating expenses	9,097	9,946
Operating income (loss)		
Therapeutic market	(3,267)	(3,410)
Biomedical market	1,590	809
Anti-aging market	(244)	(217)
Total operating loss	$ (1,921)	$ (2,818)

Geographic Information

The Company's wholly-owned subsidiaries are located in Maryland, California and Melbourne, Australia, and have customer and vendor relationships worldwide. Significant revenues in the following regions are those that are attributable to the individual country within the region to which the product was shipped (in thousands):

	Years Ended December 31,	
	2021	2020
North America	$ 5,980	$ 6,277
Asia	806	538
Europe	345	290
All other regions	45	23
Total	$ 7,176	$ 7,128

13. Subsequent Events

On January 13, 2022, to obtain funding for working capital purposes, the Company issued an unsecured, non-convertible promissory note in the principal amount of $2.9 million (the "2022 Promissory Note") to Dr. Semechkin. In exchange, Dr. Semechkin surrendered the New Note and provided an additional $250 thousand of funds to the Company. The 2022 Promissory Note, including outstanding amounts of principal and accrued interest, is due and payable March 15, 2022, but may be pre-paid by the Company without penalty at any time.

On March 1, 2022, the Company and Dr. Andrey Semechkin, the Company's Chief Executive Officer, agreed to extend the maturity date of the 2022 Promissory Note for an additional six-month period to September 15, 2022. No other terms of the 2022 Promissory Note were modified.

STANDARD INDUSTRIAL/COMMERCIAL MULTITENANT LEASE NET

1. Basic Provisions ("Basic Provisions").

1.1 Parties. This Lease ("Lease"), dated for reference purposes only October 19, 2021, is made by and between Rehco Holdings, LLC ("Lessor") and International Stem Cell Corporation & S Real Estate Holdings, LLC ("Lessee"), (collectively the "Parties", or individually a "Party").

1.2(a) **Premises**: That certain real property, including all improvements therein or to be provided by Lessor under the terms of this Lease, commonly known as (street address, unit/suite, city, state, zip): 9745 Businesspark Ave, San Diego, CA 92131 ("Premises"). The Premises are located in the County of San Diego, and are generally described as (describe briefly the nature of the Premises and the "Project"): an approximately 7,260 SF industrial suite. In addition to Lessee's rights to use and occupy the Premises as hereinafter specified, Lessee shall have nonexclusive rights to any utility raceways of the building containing the Premises ("Building") and to the Common Areas (as defined in Paragraph 2.7 below), but shall not have any rights to the roof, or exterior walls of the Building or to any other buildings in the Project. The Premises, the Building, the Common Areas, the land upon which they are located, along with all other buildings and improvements thereon, are herein collectively referred to as the "Project." (See also Paragraph 2)

1.2(b) **Parking**: prorata unreserved vehicle parking spaces. (See also Paragraph 2.6)

1.3 **Term**: Five (5) years and two (2) months ("Original Term") commencing November 1, 2021 ("Commencement Date") and ending December 31, 2026 ("Expiration Date"). (See also Paragraph 3)

1.4 **Early Possession**: If the Premises are available Lessee may have nonexclusive possession of the Premises commencing Upon Lease execution, payment of total monies due, Lessor's receipt and approval of a Certificate of Insurance ("Early Possession Date"). (See also Paragraphs 3.2 and 3.3)

1.5 **Base Rent**: $10,890 per month ("Base Rent"), payable on the first (1st) day of each month commencing November 1, 2021. (See also Paragraph 4)

X If this box is checked, there are provisions in this Lease for the Base Rent to be adjusted. See Paragraph 52

1.6 **Lessee's Share of Common Area Operating Expenses**: twenty-four percent (24%) ("Lessee's Share"). In the event that the size of the Premises and/or the Project are modified during the term of this Lease, Lessor shall recalculate Lessee's Share to reflect such modification.

1.7 **Base Rent and Other Monies Paid Upon Execution:**

(a) **Base Rent**: $10,890 for the period November 1, 2021 - November 30, 2021.

(b) **Common Area Operating Expenses**: The current estimate for the period Nov 1, 2021 - Nov 30, 2021 is $2,178.

(c) **Security Deposit**: $21,780 ("Security Deposit"). (See also Paragraph 5)

(d) **Other**: ____ for ____

(e) **Total Due Upon Execution of this Lease**: $34,848.

1.8 **Agreed Use**: General office, cell culture and biochemistry lab, food supplement (vitamin) manufacturing, production and training area for power lifting federation. (See also Paragraph 6)

1.9 **Insuring Party**. Lessor is the "Insuring Party". (See also Paragraph 8)

1.10 **Real Estate Brokers**. (See also Paragraphs 15 and 25)

(a) **Representation**: Each Party acknowledges receiving a Disclosure Regarding Real Estate Agency Relationship, confirms and consents to the following agency relationships in this Lease with the following real estate brokers ("Broker(s)") and/or their agents ("Agent(s)"):

Lessor's Brokerage Firm Colliers International CA, Inc., a Delaware corporation, d/b/a Colliers International License No. 01908588 Is the broker of (check one): X the Lessor; or ☐ both the Lessee and Lessor (dual agent).

Lessor's Agent Evan McDonald, SIOR License No. 01813359 is (check one): X the Lessor's Agent (salesperson or broker associate); or ☐ both the Lessee's Agent and the Lessor's Agent (dual agent).

Lessee's Brokerage Firm Voit Real Estate Services License No. 01991785 Is the broker of (check one): X the Lessee; or ☐ both the Lessee and Lessor (dual agent).

Lessee's Agent Josh West License No. 01923375 is (check one): X the Lessee's Agent (salesperson or broker associate); or ☐ both the Lessee's Agent and the Lessor's Agent (dual agent).

Payment to Brokers. Upon execution and delivery of this Lease by both Parties, Lessor shall pay to the Brokers the brokerage fee agreed to in a separate written agreement ~~(or if there is no such agreement, the sum of _____ or _____% of the total Base Rent) for the brokerage services rendered by the Brokers.~~

1.11 **Guarantor**. The obligations of the Lessee under this Lease are to be guaranteed by Dr. Russell Kern ("Guarantor"). (See also Paragraph 37)

1.12 **Attachments**. Attached hereto are the following, all of which constitute a part of this Lease:

X an Addendum consisting of Paragraphs 50 through 56; a site plan depicting the Premises Exhibit "A";

X a site plan depicting the Project;

☐ a current set of the Rules and Regulations for the Project;

☐ a current set of the Rules and Regulations adopted by the owners' association;

☐ a Work Letter;

X other (specify): Guaranty of Lease, Agency Disclosure .

2. Premises.

2.1 **Letting.** Lessor hereby leases to Lessee, and Lessee hereby leases from Lessor, the Premises, for the term, at the rental, and upon all of the terms, covenants and conditions set forth in this Lease. While the approximate square footage of the Premises may have been used in the marketing of the Premises for purposes of comparison, the Base Rent stated herein is NOT tied to square footage and is not subject to adjustment should the actual size be determined to be different. **NOTE: Lessee is advised to verify the actual size prior to executing this Lease.**

2.2 **Condition.** Lessor shall deliver that portion of the Premises contained within the Building ("**Unit**") to Lessee broom clean and free of debris on the Commencement Date or the Early Possession Date, whichever first occurs ("**Start Date**"), and, so long as the required service contracts described in Paragraph 7.1(b) below are obtained by Lessee and in effect within thirty days following the Start Date, warrants that the existing electrical, plumbing, fire sprinkler, lighting, heating, ventilating and air conditioning systems ("**HVAC**"), loading doors, sump pumps, if any, and all other such elements in the Unit, other than those constructed by Lessee, shall be in good operating condition on said date, that the structural elements of the roof, bearing walls and foundation of the Unit shall be free of material defects, and that the Unit does not contain hazardous levels of any mold or fungi defined as toxic under applicable state or federal law. If a noncompliance with such warranty exists as of the Start Date, or if one of such systems or elements should malfunction or fail within the appropriate warranty period, Lessor shall, as Lessor's sole obligation with respect to such matter, except as otherwise provided in this Lease, promptly after receipt of written notice from Lessee setting forth with specificity the nature and extent of such noncompliance, malfunction or failure, rectify same at Lessor's expense. The warranty periods shall be as follows: (i) 6 months as to the HVAC systems, and (ii) 30 days as to the remaining systems and other elements of the Unit. If Lessee does not give Lessor the required notice within the appropriate warranty period, correction of any such noncompliance, malfunction or failure shall be the obligation of Lessee at Lessee's sole cost and expense (except for the repairs to the fire sprinkler systems, roof, foundations, and/or bearing walls see Paragraph 7). Lessor also warrants, that unless otherwise specified in writing, Lessor is unaware of (i) any recorded Notices of Default affecting the Premise; (ii) any delinquent amounts due under any loan secured by the Premises; and (iii) any bankruptcy proceeding affecting the Premises.

2.3 **Compliance**. Lessor warrants that to the best of its knowledge the improvements on the Premises comply with the building codes, applicable laws, covenants or restrictions of record, regulations, and ordinances ("**Applicable Requirements**") that were in effect at the time that each improvement, or portion thereof, was constructed. Said warranty does not apply to the use to which Lessee will put the Premises, modifications which may be required by the Americans with Disabilities Act or any similar laws as a result of Lessee's use (see Paragraph 49), or to any Alterations or Utility Installations (as defined in Paragraph 7.3(a)) made or to be made by Lessee. **NOTE: Lessee is responsible for determining whether or not the Applicable Requirements, and especially the zoning are appropriate for Lessee's intended use, and acknowledges that past uses of the Premises may no longer be allowed**. If the Premises do not comply with said warranty, Lessor shall, except as otherwise provided, promptly after receipt of written notice from Lessee setting forth with specificity the nature and extent of such noncompliance, rectify the same at Lessor's expense. If Lessee does not give Lessor written notice of a noncompliance with this warranty within 6 months following the Start Date, correction of that noncompliance shall be the obligation of Lessee at Lessee's sole cost and expense. If the Applicable Requirements are hereafter changed so as to require during the term of this Lease the construction of an addition to or an alteration of the Unit, Premises and/or Building, the remediation of any Hazardous Substance, or the reinforcement or other physical modification of the Unit, Premises and/or Building ("Capital Expenditure"), Lessor and Lessee shall allocate the cost of such work as follows:

(a) Subject to Paragraph 2.3(c) below, if such Capital Expenditures are required as a result of the specific and unique use of the Premises by Lessee as compared with uses by tenants in general, Lessee shall be fully responsible for the cost thereof, provided, however, that if such Capital Expenditure is required during the last 2 years of this Lease and the cost thereof exceeds 6 months' Base Rent, Lessee may instead terminate this Lease unless Lessor notifies Lessee, in writing, within 10 days after receipt of Lessee's termination notice that Lessor has elected to pay the difference between the actual cost thereof and the amount equal to 6 months' Base Rent. If Lessee elects termination, Lessee shall immediately cease the use of the Premises which requires such Capital Expenditure and deliver to Lessor written notice specifying a termination date at least 90 days thereafter. Such termination date shall, however, in no event be earlier than the last day that Lessee could legally utilize the Premises without commencing such Capital Expenditure.

(b) If such Capital Expenditure is not the result of the specific and unique use of the Premises by Lessee (such as, governmentally mandated seismic modifications), then Lessor shall pay for such Capital Expenditure and Lessee shall only be obligated to pay, each month during the remainder of the term of this Lease or any extension thereof, on the date that on which the Base Rent is due, an amount equal to 1/144th of the portion of such costs reasonably attributable to the Premises. Lessee shall pay Interest on the balance but may prepay its obligation at any time. If, however, such Capital Expenditure is required during the last 2 years of this Lease or if Lessor reasonably determines that it is not economically feasible to pay its share thereof, Lessor shall have the option to terminate this Lease upon 90 days prior written notice to Lessee unless Lessee notifies Lessor, in writing, within 10 days after receipt of Lessor's termination notice that Lessee will pay for such Capital Expenditure. If Lessor does not elect to terminate, and fails to tender its share of any such Capital Expenditure, Lessee may advance such funds and deduct same, with Interest, from Rent until Lessor's share of such costs have been fully paid. If Lessee is unable to finance Lessor's share, or if the balance of the Rent due and payable for the remainder of this Lease is not sufficient to fully reimburse Lessee on an offset basis, Lessee shall have the right to terminate this Lease upon 30 days written notice to Lessor.

(c) Notwithstanding the above, the provisions concerning Capital Expenditures are intended to apply only to nonvoluntary, unexpected, and new Applicable Requirements. If the Capital Expenditures are instead triggered by Lessee as a result of an actual or proposed change in use, change in intensity of use, or modification to the Premises then, and in that event, Lessee shall either: (i) immediately cease such changed use or intensity of use and/or take such other steps as may be necessary to eliminate the requirement for such Capital Expenditure, or (ii) complete such Capital Expenditure at its own expense. Lessee shall not have any right to terminate this Lease.

2.4 **Acknowledgements**. Lessee acknowledges that: (a) it has been given an opportunity to inspect and measure the Premises; (b) it has been advised by Lessor and/or Brokers to satisfy itself with respect to the size and condition of the Premises (including but not limited to the electrical, HVAC and fire sprinkler systems, security, environmental aspects, and compliance with Applicable Requirements and the Americans with Disabilities Act), and their suitability for Lessee's intended use; (c) Lessee has made such investigation as it deems necessary with reference to such matters and assumes all responsibility therefor as the same relate to its occupancy of the Premises; (d) it is not relying on any representation as to the size of the Premises made by Brokers or Lessor; (e) the square footage of the Premises was not material to Lessee's decision to lease the Premises and pay the Rent stated herein; and (f) neither Lessor, Lessor's agents, nor Brokers have made any oral or written representations or warranties with respect to said matters other than as set forth in this Lease. In addition, Lessor acknowledges that: (i) Brokers have made no representations, promises or warranties concerning Lessee's ability to honor the Lease or suitability to occupy the Premises and (ii) it is Lessor's sole responsibility to investigate the financial capability and/or suitability of all proposed tenants.

2.5 **Lessee as Prior Owner/Occupant**. The warranties made by Lessor in Paragraph 2 shall be of no force or effect if immediately prior to the Start Date Lessee was the owner or occupant of the Premises. In such event, Lessee shall be responsible for any necessary corrective work.

2.6 **Vehicle Parking**. Lessee shall be entitled to use the number of Parking Spaces specified in Paragraph 1.2(b) on those portions of the Common Areas designated from time to time by Lessor for parking. Lessee shall not use more parking spaces than said number. Said parking spaces shall be used for parking by vehicles no larger than fullsize passenger automobiles or pickup trucks, herein called "Permitted Size Vehicles." Lessor may regulate the loading and unloading of vehicles by adopting Rules and Regulations as provided in Paragraph 2.9. No vehicles other than Permitted Size Vehicles may be parked in the Common Area without the prior written permission of Lessor. In addition:

(a) Lessee shall not permit or allow any vehicles that belong to or are controlled by Lessee or Lessee's employees, suppliers, shippers, customers, contractors or invitees to be loaded, unloaded, or parked in areas other than those designated by Lessor for such activities.

(b) Lessee shall not service or store any vehicles in the Common Areas.

(c) If Lessee permits or allows any of the prohibited activities described in this Paragraph 2.6, then Lessor shall have the right, without notice, in addition to such other rights and remedies that it may have, to remove or tow away the vehicle involved and charge the cost to Lessee, which cost shall be immediately payable upon demand by Lessor.

2.7 **Common Areas Definition**. The term "**Common Areas**" is defined as all areas and facilities outside the Premises and within the exterior boundary line of the Project and interior utility raceways and installations within the Unit that are provided and designated by the Lessor from time to time for the general nonexclusive use of Lessor, Lessee and other tenants of the Project and their respective employees, suppliers, shippers, customers, contractors and invitees, including parking areas, loading and unloading areas, trash areas, roofs, roadways, walkways, driveways and landscaped areas.

2.8 **Common Areas Lessee's Rights**. Lessor grants to Lessee, for the benefit of Lessee and its employees, suppliers, shippers, contractors, customers and invitees, during the term of this Lease, the nonexclusive right to use, in common with others entitled to such use, the Common Areas as they exist from time to time, subject to any rights, powers, and privileges reserved by Lessor under the terms hereof or under the terms of any rules and regulations or restrictions governing the use of the Project. Under no circumstances shall the right herein granted to use the Common Areas be deemed to include the right to store any property, temporarily or permanently, in the Common Areas. Any such storage shall be permitted only by the prior written consent of Lessor or Lessor's designated agent, which consent may be revoked at any time. In the event that any unauthorized storage shall occur, then Lessor shall have the right, without notice, in addition to such other rights and remedies that it may have, to remove the property and charge the cost to Lessee, which cost shall be immediately payable upon demand by Lessor.

2.9 **Common Areas Rules and Regulations**. Lessor or such other person(s) as Lessor may appoint shall have the exclusive control and management of the Common Areas and shall have the right, from time to time, to establish, modify, amend and enforce reasonable rules and regulations ("Rules and Regulations") for the management, safety, care, and cleanliness of the grounds, the parking and unloading of vehicles and the preservation of good order, as well as for the convenience of other occupants or tenants of the Building and the Project and their invitees. Lessee agrees to abide by and conform to all such Rules and Regulations, and shall use its best efforts to cause its employees, suppliers, shippers, customers, contractors and invitees to so abide and conform. Lessor shall not be responsible to Lessee for the noncompliance with said Rules and Regulations by other tenants of the Project.

2.10 **Common Areas Changes**. Lessor shall have the right, in Lessor's sole discretion, from time to time:

(a) To make changes to the Common Areas, including, without limitation, changes in the location, size, shape and number of driveways, entrances, parking spaces, parking areas, loading and unloading areas, ingress, egress, direction of traffic, landscaped areas, walkways and utility raceways;

(b) To close temporarily any of the Common Areas for maintenance purposes so long as reasonable access to the Premises remains available;

(c) To designate other land outside the boundaries of the Project to be a part of the Common Areas;

(d) To add additional buildings and improvements to the Common Areas;

(e) To use the Common Areas while engaged in making additional improvements, repairs or alterations to the Project, or any portion thereof; and

(f) To do and perform such other acts and make such other changes in, to or with respect to the Common Areas and Project as Lessor may, in the exercise of sound business judgment, deem to be appropriate.

3. Term.

3.1 **Term**. The Commencement Date, Expiration Date and Original Term of this Lease are as specified in Paragraph 1.3.

3.2 **Early Possession**. Any provision herein granting Lessee Early Possession of the Premises is subject to and conditioned upon the Premises being available for such possession prior to the Commencement Date. Any grant of Early Possession only conveys a nonexclusive right to occupy the Premises. If Lessee totally or partially occupies the Premises prior to the Commencement Date, the obligation to pay Base Rent shall be abated for the period of such Early Possession. All other terms of this Lease (including but not limited to the obligations to pay Lessee's Share of Common Area Operating Expenses, Real Property Taxes and insurance premiums and to maintain the Premises) shall be in effect during such period. Any such Early Possession shall not affect the Expiration Date.

3.3 **Delay In Possession**. Lessor agrees to use commercially reasonable efforts to deliver exclusive possession of the Premises to Lessee by the Commencement Date. If, despite said efforts, Lessor is unable to deliver possession by such date, Lessor shall not be subject to any liability therefor, nor shall such failure affect the validity of this Lease or change the Expiration Date. Lessee shall not, however, be obligated to pay Rent or perform its other obligations until Lessor delivers possession of the Premises and any period of rent abatement that Lessee would otherwise have

enjoyed shall run from the date of delivery of possession and continue for a period equal to what Lessee would otherwise have enjoyed under the terms hereof, but minus any days of delay caused by the acts or omissions of Lessee. If possession is not delivered within 60 days after the Commencement Date, as the same may be extended under the terms of any Work Letter executed by Parties, Lessee may, at its option, by notice in writing within 10 days after the end of such 60 day period, cancel this Lease, in which event the Parties shall be discharged from all obligations hereunder. If such written notice is not received by Lessor within said 10 day period, Lessee's right to cancel shall terminate. If possession of the Premises is not delivered within 120 days after the Commencement Date, this Lease shall terminate unless other agreements are reached between Lessor and Lessee, in writing.

3.4 **Lessee Compliance**. Lessor shall not be required to tender possession of the Premises to Lessee until Lessee complies with its obligation to provide evidence of insurance (Paragraph 8.5). Pending delivery of such evidence, Lessee shall be required to perform all of its obligations under this Lease from and after the Start Date, including the payment of Rent, notwithstanding Lessor's election to withhold possession pending receipt of such evidence of insurance. Further, if Lessee is required to perform any other conditions prior to or concurrent with the Start Date, the Start Date shall occur but Lessor may elect to withhold possession until such conditions are satisfied.

4. Rent.

4.1 **Rent Defined**. All monetary obligations of Lessee to Lessor under the terms of this Lease (except for the Security Deposit) are deemed to be rent ("Rent").

4.2 **Common Area Operating Expenses**. Lessee shall pay to Lessor during the term hereof, in addition to the Base Rent, Lessee's Share (as specified in Paragraph 1.6) of all Common Area Operating Expenses, as hereinafter defined, during each calendar year of the term of this Lease, in accordance with the following provisions:

(a) "Common Area Operating Expenses" are defined, for purposes of this Lease, as all costs relating to the ownership and operation of the Project, including, but not limited to, the following:

(i) The operation, repair and maintenance, in neat, clean, good order and condition, and if necessary the replacement, of the following:

(aa) The Common Areas and Common Area improvements, including parking areas, loading and unloading areas, trash areas, roadways, parkways, walkways, driveways, landscaped areas, bumpers, irrigation systems, Common Area lighting facilities, fences and gates, elevators, roofs, exterior walls of the buildings, building systems and roof drainage systems.

(bb) Exterior signs and any tenant directories.

(cc) Any fire sprinkler systems.

(dd) All other areas and improvements that are within the exterior boundaries of the Project but outside of the Premises and/or any other space occupied by a tenant.

(ii) The cost of water, gas, electricity and telephone to service the Common Areas and any utilities not separately metered.

(iii) The cost of trash disposal, pest control services, property management, security services, owners' association dues and fees, the cost to repaint the exterior of any structures and the cost of any environmental inspections.

(iv) Reserves set aside for maintenance, repair and/or replacement of Common Area improvements and equipment.

(v) Real Property Taxes (as defined in Paragraph 10).

(vi) The cost of the premiums for the insurance maintained by Lessor pursuant to Paragraph 8.

(vii) Any deductible portion of an insured loss concerning the Building or the Common Areas.

(viii) Auditors', accountants' and attorneys' fees and costs related to the operation, maintenance, repair and replacement of the Project.

(ix) The cost of any capital improvement to the Building or the Project not covered under the provisions of Paragraph 2.3 provided; however, that Lessor shall allocate the cost of any such capital improvement over a 12 year period and Lessee shall not be required to pay more than Lessee's Share of 1/144th of the cost of such capital improvement in any given month. Lessee shall pay Interest on the unamortized balance but may prepay its obligation at any time.

(x) The cost of any other services to be provided by Lessor that are stated elsewhere in this Lease to be a Common Area Operating Expense.

(b) Any Common Area Operating Expenses and Real Property Taxes that are specifically attributable to the Unit, the Building or to any other building in the Project or to the operation, repair and maintenance thereof, shall be allocated entirely to such Unit, Building, or other building. However, any Common Area Operating Expenses and

Real Property Taxes that are not specifically attributable to the Building or to any other building or to the operation, repair and maintenance thereof, shall be equitably allocated by Lessor to all buildings in the Project.

(c) The inclusion of the improvements, facilities and services set forth in Subparagraph 4.2(a) shall not be deemed to impose an obligation upon Lessor to either have said improvements or facilities or to provide those services unless the Project already has the same, Lessor already provides the services, or Lessor has agreed elsewhere in this Lease to provide the same or some of them.

(d) Lessee's Share of Common Area Operating Expenses is payable monthly on the same day as the Base Rent is due hereunder. The amount of such payments shall be based on Lessor's estimate of the annual Common Area Operating Expenses. Within 60 days after written request (but not more than once each year) Lessor shall deliver to Lessee a reasonably detailed statement showing Lessee's Share of the actual Common Area Operating Expenses for the preceding year. If Lessee's payments during such year exceed Lessee's Share, Lessor shall credit the amount of such overpayment against Lessee's future payments. If Lessee's payments during such year were less than Lessee's Share, Lessee shall pay to Lessor the amount of the deficiency within 10 days after delivery by Lessor to Lessee of the statement.

(e) Common Area Operating Expenses shall not include any expenses paid by any tenant directly to third parties, or as to which Lessor is otherwise reimbursed by any third party, other tenant, or insurance proceeds.

4.3 **Payment**. Lessee shall cause payment of Rent to be received by Lessor in lawful money of the United States, without offset or deduction (except as specifically permitted in this Lease), on or before the day on which it is due. All monetary amounts shall be rounded to the nearest whole dollar. In the event that any statement or invoice prepared by Lessor is inaccurate such inaccuracy shall not constitute a waiver and Lessee shall be obligated to pay the amount set forth in this Lease. Rent for any period during the term hereof which is for less than one full calendar month shall be prorated based upon the actual number of days of said month. Payment of Rent shall be made to Lessor at its address stated herein or to such other persons or place as Lessor may from time to time designate in writing. Acceptance of a payment which is less than the amount then due shall not be a waiver of Lessor's rights to the balance of such Rent, regardless of Lessor's endorsement of any check so stating. In the event that any check, draft, or other instrument of payment given by Lessee to Lessor is dishonored for any reason, Lessee agrees to pay to Lessor the sum of $25 in addition to any Late Charge to compensate Lessor for additional time and expenses incurred in handling the dishonored payment and Lessor, at its option, may require all future Rent be paid by cashier's check. Payments will be applied first to accrued late charges and attorney's fees, second to accrued interest, then to Base Rent and Common Area Operating Expenses, and any remaining amount to any other outstanding charges or costs.

5. **Security Deposit**. Lessee shall deposit with Lessor upon execution hereof the Security Deposit as security for Lessee's faithful performance of its obligations under this Lease. If Lessee fails to pay Rent, or otherwise Defaults under this Lease, Lessor may use, apply or retain all or any portion of said Security Deposit for the payment of any amount already due Lessor, for Rents which will be due in the future, and/ or to reimburse or compensate Lessor for any liability, expense, loss or damage which Lessor may suffer or incur by reason thereof. If Lessor uses or applies all or any portion of the Security Deposit, Lessee shall within 10 days after written request therefor deposit monies with Lessor sufficient to restore said Security Deposit to the full amount required by this Lease. If the Base Rent increases during the term of this Lease, Lessee shall, upon written request from Lessor, deposit additional monies with Lessor so that the total amount of the Security Deposit shall at all times bear the same proportion to the increased Base Rent as the initial Security Deposit bore to the initial Base Rent. Should the Agreed Use be amended to accommodate a material change in the business of Lessee or to accommodate a sublessee or assignee, Lessor shall have the right to increase the Security Deposit to the extent necessary, in Lessor's reasonable judgment, to account for any increased wear and tear that the Premises may suffer as a result thereof. If a change in control of Lessee occurs during this Lease and following such change the financial condition of Lessee is, in Lessor's reasonable judgment, significantly reduced, Lessee shall deposit such additional monies with Lessor as shall be sufficient to cause the Security Deposit to be at a commercially reasonable level based on such change in financial condition. Lessor shall not be required to keep the Security Deposit separate from its general accounts. Within 90 days after the expiration or termination of this Lease, Lessor shall return that portion of the Security Deposit not used or applied by Lessor. Lessor shall upon written request provide Lessee with an accounting showing how that portion of the Security Deposit that was not returned was applied. No part of the Security Deposit shall bear interest or be considered prepayment for any monies to be paid by Lessee under this Lease. THE SECURITY DEPOSIT SHALL NOT BE USED BY LESSEE IN LIEU OF PAYMENT OF THE LAST MONTH'S RENT.

6. Use.

6.1 **Use**. Lessee shall use and occupy the Premises only for the Agreed Use, or any other legal use which is reasonably comparable thereto, and for no other purpose. Lessee shall not use or permit the use of the Premises in a manner that is unlawful, creates damage, waste or a nuisance, or that disturbs occupants of or causes damage to neighboring premises or properties. Other than guide, signal and seeing eye dogs, Lessee shall not keep or allow in the Premises any pets, animals, birds, fish, or reptiles. Lessor shall not unreasonably withhold or delay its consent to any written request for a modification of the Agreed Use, so long as the same will not impair the structural integrity of the Building or the mechanical or electrical systems therein, and/or is not significantly more burdensome to the Project. If Lessor elects to withhold consent, Lessor shall within 7 days after such request give written notification of same, which notice shall include an explanation of Lessor's objections to the change in the Agreed Use.

6.2 **Hazardous Substances.**

(a) **Reportable Uses Require Consent**. The term "**Hazardous Substance**" as used in this Lease shall mean any product, substance, or waste whose presence, use, manufacture, disposal, transportation, or release, either by itself or in combination with other materials expected to be on the Premises, is either: (i) potentially injurious to the public health, safety or welfare, the environment or the Premises, (ii) regulated or monitored by any governmental authority, or (iii) a basis for potential liability of Lessor to any governmental agency or third party under any applicable statute or common law theory. Hazardous Substances shall include, but not be limited to, hydrocarbons, petroleum, gasoline, and/or crude oil or any products, byproducts or fractions thereof. Lessee shall not engage in any activity in or on the Premises which constitutes a Reportable Use of Hazardous Substances without the express prior written consent of Lessor and timely compliance (at Lessee's expense) with all Applicable Requirements. "**Reportable Use**" shall mean (i) the installation or use of any above or below ground storage tank, (ii) the generation, possession, storage, use, transportation, or disposal of a Hazardous Substance that requires a permit from, or with respect to which a report, notice, registration or business plan is required to be filed with, any governmental authority, and/or (iii) the presence at the Premises of a Hazardous Substance with respect to which any Applicable Requirements requires that a notice be given to persons entering or occupying the Premises or neighboring properties. Notwithstanding the foregoing, Lessee may use any ordinary and customary materials reasonably required to be used in the normal course of the Agreed Use, ordinary office supplies (copier toner, liquid paper, glue, etc.) and common household cleaning materials, so long as such use is in compliance with all Applicable Requirements, is not a Reportable Use, and does not expose the Premises or neighboring property to any meaningful risk of contamination or damage or expose Lessor to any liability therefor. In addition, Lessor may condition its consent to any Reportable Use upon receiving such additional assurances as Lessor reasonably deems necessary to protect itself, the public, the Premises and/or the environment against damage, contamination, injury and/or liability, including, but not limited to, the installation (and removal on or before Lease expiration or termination) of protective modifications (such as concrete encasements) and/or increasing the Security Deposit.

(b) **Duty to Inform Lessor**. If Lessee knows, or has reasonable cause to believe, that a Hazardous Substance has come to be located in, on, under or about the Premises, other than as previously consented to by Lessor, Lessee shall immediately give written notice of such fact to Lessor, and provide Lessor with a copy of any report, notice, claim or other documentation which it has concerning the presence of such Hazardous Substance.

(c) **Lessee Remediation**. Lessee shall not cause or permit any Hazardous Substance to be spilled or released in, on, under, or about the Premises (including through the plumbing or sanitary sewer system) and shall promptly, at Lessee's expense, comply with all Applicable Requirements and take all investigatory and/or remedial action reasonably recommended, whether or not formally ordered or required, for the cleanup of any contamination of, and for the maintenance, security and/or monitoring of the Premises or neighboring properties, that was caused or materially contributed to by Lessee, or pertaining to or involving any Hazardous Substance brought onto the Premises during the term of this Lease, by or for Lessee, or any third party.

(d) **Lessee Indemnification**. Lessee shall indemnify, defend and hold Lessor, its agents, employees, lenders and ground lessor, if any, harmless from and against any and all loss of rents and/or damages, liabilities, judgments, claims, expenses, penalties, and attorneys' and consultants' fees arising out of or involving any Hazardous Substance brought onto the Premises by or for Lessee, or any third party (provided, however, that Lessee shall have no liability under this Lease with respect to underground migration of any Hazardous Substance under the Premises from areas outside of the Project not caused or contributed to by Lessee). Lessee's obligations shall include, but not be limited to, the effects of any contamination or injury to person, property or the environment created or suffered by Lessee, and the cost of investigation, removal, remediation, restoration and/or abatement, and shall survive the expiration or termination of this Lease. No termination, cancellation or release agreement entered into by Lessor and Lessee shall release Lessee from its obligations under this Lease with respect to Hazardous Substances, unless specifically so agreed by Lessor in writing at the time of such agreement.

(e) **Lessor Indemnification**. Except as otherwise provided in paragraph 8.7, Lessor and its successors and assigns shall indemnify, defend, reimburse and hold Lessee, its employees and lenders, harmless from and against any and all environmental damages, including the cost of remediation, which are suffered as a direct result of Hazardous Substances on the Premises prior to Lessee taking possession or which are caused by the gross negligence or willful misconduct of Lessor, its agents or employees. Lessor's obligations, as and when required by the Applicable Requirements, shall include, but not be limited to, the cost of investigation, removal, remediation, restoration and/or abatement, and shall survive the expiration or termination of this Lease.

(f) **Investigations and Remediations**. Lessor shall retain the responsibility and pay for any investigations or remediation measures required by governmental entities having jurisdiction with respect to the existence of Hazardous Substances on the Premises prior to the Lessee taking possession, unless such remediation measure is required as a result of Lessee's use (including "Alterations", as defined in paragraph 7.3(a) below) of the Premises, in which event Lessee shall be responsible for such payment. Lessee shall cooperate fully in any such activities at the request of Lessor, including allowing Lessor and Lessor's agents to have reasonable access to the Premises at reasonable times in order to carry out Lessor's investigative and remedial responsibilities.

(g) **Lessor Termination Option**. If a Hazardous Substance Condition (see Paragraph 9.1(e)) occurs during the term of this Lease, unless Lessee is legally responsible therefor (in which case Lessee shall make the investigation and remediation thereof required by the Applicable Requirements and this Lease shall continue in full force and effect, but subject to Lessor's rights under Paragraph 6.2(d) and Paragraph 13), Lessor may, at Lessor's option, either (i) investigate and remediate such Hazardous Substance Condition, if required, as soon as reasonably possible at Lessor's expense, in which event this Lease shall continue in full force and effect, or (ii) if the estimated cost to remediate such condition exceeds 12 times the then monthly Base Rent or $100,000, whichever is greater, give written notice to Lessee, within 30 days after receipt by Lessor of knowledge of the occurrence of such Hazardous Substance Condition, of Lessor's desire to terminate this Lease as of the date 60 days following the date of such notice. In the event Lessor elects to give a termination notice, Lessee may, within 10 days thereafter, give written notice to Lessor of Lessee's commitment to pay the amount by which the cost of the remediation of such Hazardous Substance Condition exceeds an amount equal to 12 times the then monthly Base Rent or $100,000, whichever is greater. Lessee shall provide Lessor with said funds or satisfactory assurance thereof within 30 days following such commitment. In such event, this Lease shall continue in full force and effect, and Lessor shall proceed to make such remediation as soon as reasonably possible after the required funds are available. If Lessee does not give such notice and provide the required funds or assurance thereof within the time provided, this Lease shall terminate as of the date specified in Lessor's notice of termination.

6.3 **Lessee's Compliance with Applicable Requirements**. Except as otherwise provided in this Lease, Lessee shall, at Lessee's sole expense, fully, diligently and in a timely manner, materially comply with all Applicable Requirements, the requirements of any applicable fire insurance underwriter or rating bureau, and the recommendations of Lessor's engineers and/or consultants which relate in any manner to the Premises, without regard to whether said Applicable Requirements are now in effect or become effective after the Start Date. Lessee shall, within 10 days after receipt of Lessor's written request, provide Lessor with copies of all permits and other documents, and other information evidencing Lessee's compliance with any Applicable Requirements specified by Lessor, and shall immediately upon receipt, notify Lessor in writing (with copies of any documents involved) of any threatened or actual claim, notice, citation, warning, complaint or report pertaining to or involving the failure of Lessee or the Premises to comply with any Applicable Requirements. Likewise, Lessee shall immediately give written notice to Lessor of: (i) any water damage to the Premises and any suspected seepage, pooling, dampness or other condition conducive to the production of mold; or (ii) any mustiness or other odors that might indicate the presence of mold in the Premises.

6.4 **Inspection; Compliance**. Lessor and Lessor's "**Lender**" (as defined in Paragraph 30) and consultants authorized by Lessor shall have the right to enter into Premises at any time in the case of an emergency, and otherwise at reasonable times after reasonable notice, for the purpose of inspecting and/or testing the condition of the Premises and/or for verifying compliance by Lessee with this Lease. The cost of any such inspections shall be paid by Lessor, unless a violation of Applicable Requirements, or a Hazardous Substance Condition (see Paragraph 9.1(e)) is found to exist or be imminent, or the inspection is requested or ordered by a governmental authority. In such case, Lessee shall upon request reimburse Lessor for the cost of such inspection, so long as such inspection is reasonably related to the violation or contamination. In addition, Lessee shall provide copies of all relevant material safety data sheets (**MSDS**) to Lessor within 10 days of the receipt of written request therefor. Lessee acknowledges that any failure on its part to allow such inspections or testing will expose Lessor to risks and potentially cause Lessor to incur costs not contemplated by this Lease, the extent of which will be extremely difficult to ascertain. Accordingly, should the Lessee fail to allow such inspections and/or testing in a timely fashion the Base Rent shall be automatically increased, without

any requirement for notice to Lessee, by an amount equal to 10% of the then existing Base Rent or $100, whichever is greater for the remainder to the Lease. The Parties agree that such increase in Base Rent represents fair and reasonable compensation for the additional risk/costs that Lessor will incur by reason of Lessee's failure to allow such inspection and/or testing. Such increase in Base Rent shall in no event constitute a waiver of Lessee's Default or Breach with respect to such failure nor prevent the exercise of any of the other rights and remedies granted hereunder.

7. Maintenance; Repairs; Utility Installations; Trade Fixtures and Alterations.

7.1 **Lessee's Obligations.**

(a) **In General**. Subject to the provisions of Paragraph 2.2 (Condition), 2.3 (Compliance), 6.3 (Lessee's Compliance with Applicable Requirements), 7.2 (Lessor's Obligations), 9 (Damage or Destruction), and 14 (Condemnation), Lessee shall, at Lessee's sole expense, keep the Premises, Utility Installations (intended for Lessee's exclusive use, no matter where located), and Alterations in good order, condition and repair (whether or not the portion of the Premises requiring repairs, or the means of repairing the same, are reasonably or readily accessible to Lessee, and whether or not the need for such repairs occurs as a result of Lessee's use, any prior use, the elements or the age of such portion of the Premises), including, but not limited to, all equipment or facilities, such as plumbing, HVAC equipment, electrical, lighting facilities, boilers, pressure vessels, fixtures, interior walls, interior surfaces of exterior walls, ceilings, floors, windows, doors, plate glass, and skylights but excluding any items which are the responsibility of Lessor pursuant to Paragraph 7.2. Lessee, in keeping the Premises in good order, condition and repair, shall exercise and perform good maintenance practices, specifically including the procurement and maintenance of the service contracts required by Paragraph 7.1(b) below. Lessee's obligations shall include restorations, replacements or renewals when necessary to keep the Premises and all improvements thereon or a part thereof in good order, condition and state of repair.

(b) **Service Contracts**. Lessee shall, at Lessee's sole expense, procure and maintain contracts, with copies to Lessor, in customary form and substance for, and with contractors specializing and experienced in the maintenance of the following equipment and improvements, if any, if and when installed on the Premises: (i) HVAC equipment, (ii) boiler and pressure vessels, and (iii) clarifiers. However, Lessor reserves the right, upon notice to Lessee, to procure and maintain any or all of such service contracts, and Lessee shall reimburse Lessor, upon demand, for the cost thereof.

(c) **Failure to Perform**. If Lessee fails to perform Lessee's obligations under this Paragraph 7.1, Lessor may enter upon the Premises after 10 days' prior written notice to Lessee (except in the case of an emergency, in which case no notice shall be required), perform such obligations on Lessee's behalf, and put the Premises in good order, condition and repair, and Lessee shall promptly pay to Lessor a sum equal to 115% of the cost thereof.

(d) **Replacement**. Subject to Lessee's indemnification of Lessor as set forth in Paragraph 8.7 below, and without relieving Lessee of liability resulting from Lessee's failure to exercise and perform good maintenance practices, if an item described in Paragraph 7.1(b) cannot be repaired other than at a cost which is in excess of 50% of the cost of replacing such item, then such item shall be replaced by Lessor, and the cost thereof shall be prorated between the Parties and Lessee shall only be obligated to pay, each month during the remainder of the term of this Lease or any extension thereof, on the date on which Base Rent is due, an amount equal to the product of multiplying the cost of such replacement by a fraction, the numerator of which is one, and the denominator of which is 144 (i.e. 1/144th of the cost per month). Lessee shall pay Interest on the unamortized balance but may prepay its obligation at any time.

7.2 **Lessor's Obligations**. Subject to the provisions of Paragraphs 2.2 (Condition), 2.3 (Compliance), 4.2 (Common Area Operating Expenses), 6 (Use), 7.1 (Lessee's Obligations), 9 (Damage or Destruction) and 14 (Condemnation), Lessor, subject to reimbursement pursuant to Paragraph 4.2, shall keep in good order, condition and repair the foundations, exterior walls, structural condition of interior bearing walls, exterior roof, fire sprinkler system, Common Area fire alarm and/or smoke detection systems, fire hydrants, parking lots, walkways, parkways, driveways, landscaping, fences, signs and utility systems serving the Common Areas and all parts thereof, as well as providing the services for which there is a Common Area Operating Expense pursuant to Paragraph 4.2. Lessor shall not be obligated to paint the exterior or interior surfaces of exterior walls nor shall Lessor be obligated to maintain, repair or replace windows, doors or plate glass of the Premises.

7.3 **Utility Installations; Trade Fixtures; Alterations.**

(a) **Definitions**. The term "**Utility Installations**" refers to all floor and window coverings, air and/or vacuum lines, power panels, electrical distribution, security and fire protection systems, communication cabling, lighting fixtures, HVAC equipment, plumbing, and fencing in or on the Premises. The term "**Trade Fixtures**" shall mean Lessee's machinery and equipment that can be removed without doing material damage to the Premises. The term "Alterations" shall mean any modification of the improvements, other than Utility Installations or Trade Fixtures,

whether by addition or deletion. "**Lessee Owned Alterations and/or Utility Installations**" are defined as Alterations and/or Utility Installations made by Lessee that are not yet owned by Lessor pursuant to Paragraph 7.4(a).

(b) **Consent**. Lessee shall not make any Alterations or Utility Installations to the Premises without Lessor's prior written consent. Lessee may, however, make nonstructural Alterations or Utility Installations to the interior of the Premises (excluding the roof) without such consent but upon notice to Lessor, as long as they are not visible from the outside, do not involve puncturing, relocating or removing the roof or any existing walls, will not affect the electrical, plumbing, HVAC, and/or life safety systems, do not trigger the requirement for additional modifications and/or improvements to the Premises resulting from Applicable Requirements, such as compliance with Title 24, and/or life safety systems, and the cumulative cost thereof during this Lease as extended does not exceed a sum equal to 3 month's Base Rent in the aggregate or a sum equal to one month's Base Rent in any one year. Notwithstanding the foregoing, Lessee shall not make or permit any roof penetrations and/or install anything on the roof without the prior written approval of Lessor. Lessor may, as a precondition to granting such approval, require Lessee to utilize a contractor chosen and/or approved by Lessor. Any Alterations or Utility Installations that Lessee shall desire to make and which require the consent of the Lessor shall be presented to Lessor in written form with detailed plans. Consent shall be deemed conditioned upon Lessee's: (i) acquiring all applicable governmental permits, (ii) furnishing Lessor with copies of both the permits and the plans and specifications prior to commencement of the work, and (iii) compliance with all conditions of said permits and other Applicable Requirements in a prompt and expeditious manner. Any Alterations or Utility Installations shall be performed in a workmanlike manner with good and sufficient materials. Lessee shall promptly upon completion furnish Lessor with asbuilt plans and specifications. For work which costs an amount in excess of one month's Base Rent, Lessor may condition its consent upon Lessee providing a lien and completion bond in an amount equal to 150% of the estimated cost of such Alteration or Utility Installation and/or upon Lessee's posting an additional Security Deposit with Lessor.

(c) **Liens; Bonds**. Lessee shall pay, when due, all claims for labor or materials furnished or alleged to have been furnished to or for Lessee at or for use on the Premises, which claims are or may be secured by any mechanic's or materialmen's lien against the Premises or any interest therein. Lessee shall give Lessor not less than 10 days notice prior to the commencement of any work in, on or about the Premises, and Lessor shall have the right to post notices of nonresponsibility. If Lessee shall contest the validity of any such lien, claim or demand, then Lessee shall, at its sole expense defend and protect itself, Lessor and the Premises against the same and shall pay and satisfy any such adverse judgment that may be rendered thereon before the enforcement thereof. If Lessor shall require, Lessee shall furnish a surety bond in an amount equal to 150% of the amount of such contested lien, claim or demand, indemnifying Lessor against liability for the same. If Lessor elects to participate in any such action, Lessee shall pay Lessor's attorneys' fees and costs.

7.4 **Ownership; Removal; Surrender; and Restoration.**

(a) **Ownership**. Subject to Lessor's right to require removal or elect ownership as hereinafter provided, all Alterations and Utility Installations made by Lessee shall be the property of Lessee, but considered a part of the Premises. Lessor may, at any time, elect in writing to be the owner of all or any specified part of the Lessee Owned Alterations and Utility Installations. Unless otherwise instructed per paragraph 7.4(b) hereof, all Lessee Owned Alterations and Utility Installations shall, at the expiration or termination of this Lease, become the property of Lessor and be surrendered by Lessee with the Premises.

(b) **Removal**. By delivery to Lessee of written notice from Lessor not earlier than 90 and not later than 30 days prior to the end of the term of this Lease, Lessor may require that any or all Lessee Owned Alterations or Utility Installations be removed by the expiration or termination of this Lease. Lessor may require the removal at any time of all or any part of any Lessee Owned Alterations or Utility Installations made without the required consent.

(c) **Surrender; Restoration**. Lessee shall surrender the Premises by the Expiration Date or any earlier termination date, with all of the improvements, parts and surfaces thereof broom clean and free of debris, and in good operating order, condition and state of repair, ordinary wear and tear excepted. "Ordinary wear and tear" shall not include any damage or deterioration that would have been prevented by good maintenance practice. Notwithstanding the foregoing and the provisions of Paragraph 7.1(a), if the Lessee occupies the Premises for 12 months or less, then Lessee shall surrender the Premises in the same condition as delivered to Lessee on the Start Date with NO allowance for ordinary wear and tear. Lessee shall repair any damage occasioned by the installation, maintenance or removal of Trade Fixtures, Lessee owned Alterations and/or Utility Installations, furnishings, and equipment as well as the removal of any storage tank installed by or for Lessee. Lessee shall also remove from the Premises any and all Hazardous Substances brought onto the Premises by or for Lessee, or any third party (except Hazardous Substances which were deposited via underground migration from areas outside of the Project) to the level specified in Applicable Requirements. Trade Fixtures shall remain the property of Lessee and shall be removed by Lessee. Any personal property of Lessee not removed on or before the Expiration Date or any earlier termination date shall be deemed to

have been abandoned by Lessee and may be disposed of or retained by Lessor as Lessor may desire. The failure by Lessee to timely vacate the Premises pursuant to this Paragraph 7.4(c) without the express written consent of Lessor shall constitute a holdover under the provisions of Paragraph 26 below.

8. Insurance; Indemnity.

8.1 **Payment of Premiums**. The cost of the premiums for the insurance policies required to be carried by Lessor, pursuant to Paragraphs 8.2(b), 8.3(a) and 8.3(b), shall be a Common Area Operating Expense. Premiums for policy periods commencing prior to, or extending beyond, the term of this Lease shall be prorated to coincide with the corresponding Start Date or Expiration Date.

8.2 **Liability Insurance.**

(a) **Carried by Lessee**. Lessee shall obtain and keep in force a Commercial General Liability policy of insurance protecting Lessee and Lessor as an additional insured against claims for bodily injury, personal injury and property damage based upon or arising out of the ownership, use, occupancy or maintenance of the Premises and all areas appurtenant thereto. Such insurance shall be on an occurrence basis providing single limit coverage in an amount not less than $1,000,000 per occurrence with an annual aggregate of not less than $2,000,000. Lessee shall add Lessor as an additional insured by means of an endorsement at least as broad as the Insurance Service Organization's "Additional InsuredManagers or Lessors of Premises" Endorsement. The policy shall not contain any intrainsured exclusions as between insured persons or organizations, but shall include coverage for liability assumed under this Lease as an "insured contract" for the performance of Lessee's indemnity obligations under this Lease. The limits of said insurance shall not, however, limit the liability of Lessee nor relieve Lessee of any obligation hereunder. Lessee shall provide an endorsement on its liability policy(ies) which provides that its insurance shall be primary to and not contributory with any similar insurance carried by Lessor, whose insurance shall be considered excess insurance only.

(b) **Carried by Lessor**. Lessor shall maintain liability insurance as described in Paragraph 8.2(a), in addition to, and not in lieu of, the insurance required to be maintained by Lessee. Lessee shall not be named as an additional insured therein.

8.3 **Property Insurance Building, Improvements and Rental Value.**

(a) **Building and Improvements**. Lessor shall obtain and keep in force a policy or policies of insurance in the name of Lessor, with loss payable to Lessor, any groundlessor, and to any Lender insuring loss or damage to the Premises. The amount of such insurance shall be equal to the full insurable replacement cost of the Premises, as the same shall exist from time to time, or the amount required by any Lender, but in no event more than the commercially reasonable and available insurable value thereof. Lessee Owned Alterations and Utility Installations, Trade Fixtures, and Lessee's personal property shall be insured by Lessee not by Lessor. If the coverage is available and commercially appropriate, such policy or policies shall insure against all risks of direct physical loss or damage (except the perils of flood and/or earthquake unless required by a Lender), including coverage for debris removal and the enforcement of any Applicable Requirements requiring the upgrading, demolition, reconstruction or replacement of any portion of the Premises as the result of a covered loss. Said policy or policies shall also contain an agreed valuation provision in lieu of any coinsurance clause, waiver of subrogation, and inflation guard protection causing an increase in the annual property insurance coverage amount by a factor of not less than the adjusted U.S. Department of Labor Consumer Price Index for All Urban Consumers for the city nearest to where the Premises are located. If such insurance coverage has a deductible clause, the deductible amount shall not exceed $5,000 per occurrence.

(b) Rental Value. Lessor shall also obtain and keep in force a policy or policies in the name of Lessor with loss payable to Lessor and any Lender, insuring the loss of the full Rent for one year with an extended period of indemnity for an additional 180 days ("Rental Value insurance"). Said insurance shall contain an agreed valuation provision in lieu of any coinsurance clause, and the amount of coverage shall be adjusted annually to reflect the projected Rent otherwise payable by Lessee, for the next 12 month period.

(c) Adjacent Premises. Lessee shall pay for any increase in the premiums for the property insurance of the Building and for the Common Areas or other buildings in the Project if said increase is caused by Lessee's acts, omissions, use or occupancy of the Premises.

(d) Lessee's Improvements. Since Lessor is the Insuring Party, Lessor shall not be required to insure Lessee Owned Alterations and Utility Installations unless the item in question has become the property of Lessor under the terms of this Lease.

8.4 **Lessee's Property; Business Interruption Insurance; Worker's Compensation Insurance.**

(a) **Property Damage**. Lessee shall obtain and maintain insurance coverage on all of Lessee's personal property, Trade Fixtures, and Lessee Owned Alterations and Utility Installations. Such insurance shall be full replacement cost coverage with a deductible of not to exceed $1,000 per occurrence. The proceeds from any such

insurance shall be used by Lessee for the replacement of personal property, Trade Fixtures and Lessee Owned Alterations and Utility Installations.

(b) **Business Interruption**. Lessee shall obtain and maintain loss of income and extra expense insurance in amounts as will reimburse Lessee for direct or indirect loss of earnings attributable to all perils commonly insured against by prudent lessees in the business of Lessee or attributable to prevention of access to the Premises as a result of such perils.

(c) **Worker's Compensation Insurance**. Lessee shall obtain and maintain Worker's Compensation Insurance in such amount as may be required by Applicable Requirements. Such policy shall include a 'Waiver of Subrogation' endorsement. Lessee shall provide Lessor with a copy of such endorsement along with the certificate of insurance or copy of the policy required by paragraph 8.5.

(d) **No Representation of Adequate Coverage**. Lessor makes no representation that the limits or forms of coverage of insurance specified herein are adequate to cover Lessee's property, business operations or obligations under this Lease.

8.5 **Insurance Policies**. Insurance required herein shall be by companies maintaining during the policy term a "General Policyholders Rating" of at least A, VII, as set forth in the most current issue of "Best's Insurance Guide", or such other rating as may be required by a Lender. Lessee shall not do or permit to be done anything which invalidates the required insurance policies. Lessee shall, prior to the Start Date, deliver to Lessor certified copies of policies of such insurance or certificates with copies of the required endorsements evidencing the existence and amounts of the required insurance. No such policy shall be cancelable or subject to modification except after 30 days prior written notice to Lessor. Lessee shall, at least 10 days prior to the expiration of such policies, furnish Lessor with evidence of renewals or "insurance binders" evidencing renewal thereof, or Lessor may increase his liability insurance coverage and charge the cost thereof to Lessee, which amount shall be payable by Lessee to Lessor upon demand. Such policies shall be for a term of at least one year, or the length of the remaining term of this Lease, whichever is less. If either Party shall fail to procure and maintain the insurance required to be carried by it, the other Party may, but shall not be required to, procure and maintain the same.

8.6 **Waiver of Subrogation**. Without affecting any other rights or remedies, Lessee and Lessor each hereby release and relieve the other, and waive their entire right to recover damages against the other, for loss of or damage to its property arising out of or incident to the perils required to be insured against herein. The effect of such releases and waivers is not limited by the amount of insurance carried or required, or by any deductibles applicable hereto. The Parties agree to have their respective property damage insurance carriers waive any right to subrogation that such companies may have against Lessor or Lessee, as the case may be, so long as the insurance is not invalidated thereby.

8.7 **Indemnity**. Except for Lessor's gross negligence or willful misconduct, Lessee shall indemnify, protect, defend and hold harmless the Premises, Lessor and its agents, Lessor's master or ground lessor, partners and Lenders, from and against any and all claims, loss of rents and/or damages, liens, judgments, penalties, attorneys' and consultants' fees, expenses and/or liabilities arising out of, involving, or in connection with, a Breach of the Lease by Lessee and/or the use and/or occupancy of the Premises and/or Project by Lessee and/or by Lessee's employees, contractors or invitees . If any action or proceeding is brought against Lessor by reason of any of the foregoing matters, Lessee shall upon notice defend the same at Lessee's expense by counsel reasonably satisfactory to Lessor and Lessor shall cooperate with Lessee in such defense. Lessor need not have first paid any such claim in order to be defended or indemnified.

8.8 **Exemption of Lessor and its Agents from Liability**. Notwithstanding the negligence or breach of this Lease by Lessor or its agents, neither Lessor nor its agents shall be liable under any circumstances for: (i) injury or damage to the person or goods, wares, merchandise or other property of Lessee, Lessee's employees, contractors, invitees, customers, or any other person in or about the Premises, whether such damage or injury is caused by or results from fire, steam, electricity, gas, water or rain, indoor air quality, the presence of mold or from the breakage, leakage, obstruction or other defects of pipes, fire sprinklers, wires, appliances, plumbing, HVAC or lighting fixtures, or from any other cause, whether the said injury or damage results from conditions arising upon the Premises or upon other portions of the Building, or from other sources or places; (ii) any damages arising from any act or neglect of any other tenant of Lessor or from the failure of Lessor or its agents to enforce the provisions of any other lease in the Project; or (iii) injury to Lessee's business or for any loss of income or profit therefrom. Instead, it is intended that Lessee's sole recourse in the event of such damages or injury be to file a claim on the insurance policy(ies) that Lessee is required to maintain pursuant to the provisions of paragraph 8.

8.9 **Failure to Provide Insurance**. Lessee acknowledges that any failure on its part to obtain or maintain the insurance required herein will expose Lessor to risks and potentially cause Lessor to incur costs not contemplated by this Lease, the extent of which will be extremely difficult to ascertain. Accordingly, for any month or portion thereof that Lessee does not maintain the required insurance and/or does not provide Lessor with the required binders or

certificates evidencing the existence of the required insurance, the Base Rent shall be automatically increased, without any requirement for notice to Lessee, by an amount equal to 10% of the then existing Base Rent or $100, whichever is greater. The parties agree that such increase in Base Rent represents fair and reasonable compensation for the additional risk/costs that Lessor will incur by reason of Lessee's failure to maintain the required insurance. Such increase in Base Rent shall in no event constitute a waiver of Lessee's Default or Breach with respect to the failure to maintain such insurance, prevent the exercise of any of the other rights and remedies granted hereunder, nor relieve Lessee of its obligation to maintain the insurance specified in this Lease.

9. Damage or Destruction.

9.1 Definitions.

(a) "**Premises Partial Damage**" shall mean damage or destruction to the improvements on the Premises, other than Lessee Owned Alterations and Utility Installations, which can reasonably be repaired in 3 months or less from the date of the damage or destruction, and the cost thereof does not exceed a sum equal to 6 month's Base Rent. Lessor shall notify Lessee in writing within 30 days from the date of the damage or destruction as to whether or not the damage is Partial or Total.

(b) "**Premises Total Destruction**" shall mean damage or destruction to the improvements on the Premises, other than Lessee Owned Alterations and Utility Installations and Trade Fixtures, which cannot reasonably be repaired in 3 months or less from the date of the damage or destruction and/or the cost thereof exceeds a sum equal to 6 month's Base Rent. Lessor shall notify Lessee in writing within 30 days from the date of the damage or destruction as to whether or not the damage is Partial or Total.

(c) "**Insured Loss**" shall mean damage or destruction to improvements on the Premises, other than Lessee Owned Alterations and Utility Installations and Trade Fixtures, which was caused by an event required to be covered by the insurance described in Paragraph 8.3(a), irrespective of any deductible amounts or coverage limits involved.

(d) "**Replacement Cost**" shall mean the cost to repair or rebuild the improvements owned by Lessor at the time of the occurrence to their condition existing immediately prior thereto, including demolition, debris removal and upgrading required by the operation of Applicable Requirements, and without deduction for depreciation.

(e) "**Hazardous Substance Condition**" shall mean the occurrence or discovery of a condition involving the presence of, or a contamination by, a Hazardous Substance, in, on, or under the Premises which requires restoration.

9.2 **Partial Damage Insured Loss**. If a Premises Partial Damage that is an Insured Loss occurs, then Lessor shall, at Lessor's expense, repair such damage (but not Lessee's Trade Fixtures or Lessee Owned Alterations and Utility Installations) as soon as reasonably possible and this Lease shall continue in full force and effect; provided, however, that Lessee shall, at Lessor's election, make the repair of any damage or destruction the total cost to repair of which is $10,000 or less, and, in such event, Lessor shall make any applicable insurance proceeds available to Lessee on a reasonable basis for that purpose. Notwithstanding the foregoing, if the required insurance was not in force or the insurance proceeds are not sufficient to effect such repair, the Insuring Party shall promptly contribute the shortage in proceeds as and when required to complete said repairs. In the event, however, such shortage was due to the fact that, by reason of the unique nature of the improvements, full replacement cost insurance coverage was not commercially reasonable and available, Lessor shall have no obligation to pay for the shortage in insurance proceeds or to fully restore the unique aspects of the Premises unless Lessee provides Lessor with the funds to cover same, or adequate assurance thereof, within 10 days following receipt of written notice of such shortage and request therefor. If Lessor receives said funds or adequate assurance thereof within said 10 day period, the party responsible for making the repairs shall complete them as soon as reasonably possible and this Lease shall remain in full force and effect. If such funds or assurance are not received, Lessor may nevertheless elect by written notice to Lessee within 10 days thereafter to: (i) make such restoration and repair as is commercially reasonable with Lessor paying any shortage in proceeds, in which case this Lease shall remain in full force and effect, or (ii) have this Lease terminate 30 days thereafter. Lessee shall not be entitled to reimbursement of any funds contributed by Lessee to repair any such damage or destruction. Premises Partial Damage due to flood or earthquake shall be subject to Paragraph 9.3, notwithstanding that there may be some insurance coverage, but the net proceeds of any such insurance shall be made available for the repairs if made by either Party.

9.3 **Partial Damage Uninsured Loss**. If a Premises Partial Damage that is not an Insured Loss occurs, unless caused by a negligent or willful act of Lessee (in which event Lessee shall make the repairs at Lessee's expense), Lessor may either: (i) repair such damage as soon as reasonably possible at Lessor's expense (subject to reimbursement pursuant to Paragraph 4.2), in which event this Lease shall continue in full force and effect, or (ii) terminate this Lease by giving written notice to Lessee within 30 days after receipt by Lessor of knowledge of the occurrence of such

damage. Such termination shall be effective 60 days following the date of such notice. In the event Lessor elects to terminate this Lease, Lessee shall have the right within 10 days after receipt of the termination notice to give written notice to Lessor of Lessee's commitment to pay for the repair of such damage without reimbursement from Lessor. Lessee shall provide Lessor with said funds or satisfactory assurance thereof within 30 days after making such commitment. In such event this Lease shall continue in full force and effect, and Lessor shall proceed to make such repairs as soon as reasonably possible after the required funds are available. If Lessee does not make the required commitment, this Lease shall terminate as of the date specified in the termination notice.

9.4 **Total Destruction**. Notwithstanding any other provision hereof, if a Premises Total Destruction occurs, this Lease shall terminate 60 days following such Destruction. If the damage or destruction was caused by the gross negligence or willful misconduct of Lessee, Lessor shall have the right to recover Lessor's damages from Lessee, except as provided in Paragraph 8.6.

9.5 **Damage Near End of Term**. If at any time during the last 6 months of this Lease there is damage for which the cost to repair exceeds one month's Base Rent, whether or not an Insured Loss, Lessor may terminate this Lease effective 60 days following the date of occurrence of such damage by giving a written termination notice to Lessee within 30 days aGer the date of occurrence of such damage. Notwithstanding the foregoing, if Lessee at that time has an exercisable option to extend this Lease or to purchase the Premises, then Lessee may preserve this Lease by (a) exercising such option and (b) providing Lessor with any shortage in insurance proceeds (or adequate assurance thereof) needed to make the repairs on or before the earlier of (i) the date which is 10 days after Lessee's receipt of Lessor's written notice purporting to terminate this Lease, or (ii) the day prior to the date upon which such option expires. If Lessee duly exercises such option during such period and provides Lessor with funds (or adequate assurance thereof) to cover any shortage in insurance proceeds, Lessor shall, at Lessor's commercially reasonable expense, repair such damage as soon as reasonably possible and this Lease shall continue in full force and effect. If Lessee fails to exercise such option and provide such funds or assurance during such period, then this Lease shall terminate on the date specified in the termination notice and Lessee's option shall be extinguished.

9.6 **Abatement of Rent; Lessee's Remedies.**

(a) **Abatement**. In the event of Premises Partial Damage or Premises Total Destruction or a Hazardous Substance Condition for which Lessee is not responsible under this Lease, the Rent payable by Lessee for the period required for the repair, remediation or restoration of such damage shall be abated in proportion to the degree to which Lessee's use of the Premises is impaired, but not to exceed the proceeds received from the Rental Value insurance. All other obligations of Lessee hereunder shall be performed by Lessee, and Lessor shall have no liability for any such damage, destruction, remediation, repair or restoration except as provided herein.

(b) **Remedies**. If Lessor is obligated to repair or restore the Premises and does not commence, in a substantial and meaningful way, such repair or restoration within 90 days after such obligation shall accrue, Lessee may, at any time prior to the commencement of such repair or restoration, give written notice to Lessor and to any Lenders of which Lessee has actual notice, of Lessee's election to terminate this Lease on a date not less than 60 days following the giving of such notice. If Lessee gives such notice and such repair or restoration is not commenced within 30 days thereafter, this Lease shall terminate as of the date specified in said notice. If the repair or restoration is commenced within such 30 days, this Lease shall continue in full force and effect. "Commence" shall mean either the unconditional authorization of the preparation of the required plans, or the beginning of the actual work on the Premises, whichever first occurs.

9.7 **Termination; Advance Payments**. Upon termination of this Lease pursuant to Paragraph 6.2(g) or Paragraph 9, an equitable adjustment shall be made concerning advance Base Rent and any other advance payments made by Lessee to Lessor. Lessor shall, in addition, return to Lessee so much of Lessee's Security Deposit as has not been, or is not then required to be, used by Lessor.

10. Real Property Taxes.

10.1 **Definition**. As used herein, the term "**Real Property Taxes**" shall include any form of assessment; real estate, general, special, ordinary or extraordinary, or rental levy or tax (other than inheritance, personal income or estate taxes); improvement bond; and/or license fee imposed upon or levied against any legal or equitable interest of Lessor in the Project, Lessor's right to other income therefrom, and/or Lessor's business of leasing, by any authority having the direct or indirect power to tax and where the funds are generated with reference to the Project address. The term "Real Property Taxes" shall also include any tax, fee, levy, assessment or charge, or any increase therein: (i) imposed by reason of events occurring during the term of this Lease, including but not limited to, a change in the ownership of the Project, (ii) a change in the improvements thereon, and/or (iii) levied or assessed on machinery or equipment provided by Lessor to Lessee pursuant to this Lease. In calculating Real Property Taxes for any calendar

year, the Real Property Taxes for any real estate tax year shall be included in the calculation of Real Property Taxes for such calendar year based upon the number of days which such calendar year and tax year have in common.

10.2 **Payment of Taxes**. Except as otherwise provided in Paragraph 10.3, Lessor shall pay the Real Property Taxes applicable to the Project, and said payments shall be included in the calculation of Common Area Operating Expenses in accordance with the provisions of Paragraph 4.2.

10.3 **Additional Improvements**. Common Area Operating Expenses shall not include Real Property Taxes specified in the tax assessor's records and work sheets as being caused by additional improvements placed upon the Project by other lessees or by Lessor for the exclusive enjoyment of such other lessees. Notwithstanding Paragraph 10.2 hereof, Lessee shall, however, pay to Lessor at the time Common Area Operating Expenses are payable under Paragraph 4.2, the entirety of any increase in Real Property Taxes if assessed solely by reason of Alterations, Trade Fixtures or Utility Installations placed upon the Premises by Lessee or at Lessee's request or by reason of any alterations or improvements to the Premises made by Lessor subsequent to the execution of this Lease by the Parties.

10.4 **Joint Assessment**. If the Building is not separately assessed, Real Property Taxes allocated to the Building shall be an equitable proportion of the Real Property Taxes for all of the land and improvements included within the tax parcel assessed, such proportion to be determined by Lessor from the respective valuations assigned in the assessor's work sheets or such other information as may be reasonably available. Lessor's reasonable determination thereof, in good faith, shall be conclusive.

10.5 **Personal Property Taxes**. Lessee shall pay prior to delinquency all taxes assessed against and levied upon Lessee Owned Alterations and Utility Installations, Trade Fixtures, furnishings, equipment and all personal property of Lessee contained in the Premises. When possible, Lessee shall cause its Lessee Owned Alterations and Utility Installations, Trade Fixtures, furnishings, equipment and all other personal property to be assessed and billed separately from the real property of Lessor. If any of Lessee's said property shall be assessed with Lessor's real property, Lessee shall pay Lessor the taxes attributable to Lessee's property within 10 days after receipt of a written statement setting forth the taxes applicable to Lessee's property.

11. Utilities and Services.

11.1 Lessee shall pay for all water, gas, heat, light, power, telephone, trash disposal and other utilities and services supplied to the Premises, together with any taxes thereon. Notwithstanding the provisions of Paragraph 4.2, if at any time in Lessor's sole judgment, Lessor determines that Lessee is using a disproportionate amount of water, electricity or other commonly metered utilities, or that Lessee is generating such a large volume of trash as to require an increase in the size of the trash receptacle and/or an increase in the number of times per month that it is emptied, then Lessor may increase Lessee's Base Rent by an amount equal to such increased costs. There shall be no abatement of Rent and Lessor shall not be liable in any respect whatsoever for the inadequacy, stoppage, interruption or discontinuance of any utility or service due to riot, strike, labor dispute, breakdown, accident, repair or other cause beyond Lessor's reasonable control or in cooperation with governmental request or directions.

11.2 Within fifteen days of Lessor's written request, Lessee agrees to deliver to Lessor such information, documents and/or authorization as Lessor needs in order for Lessor to comply with new or existing Applicable Requirements relating to commercial building energy usage, ratings, and/or the reporting thereof.

12. Assignment and Subletting.

12.1 **Lessor's Consent Required.**

(a) Lessee shall not voluntarily or by operation of law assign, transfer, mortgage or encumber (collectively, "**assign or assignment**") or sublet all or any part of Lessee's interest in this Lease or in the Premises without Lessor's prior written consent.

(b) Unless Lessee is a corporation and its stock is publicly traded on a national stock exchange, a change in the control of Lessee shall constitute an assignment requiring consent. The transfer, on a cumulative basis, of 25% or more of the voting control of Lessee shall constitute a change in control for this purpose.

(c) The involvement of Lessee or its assets in any transaction, or series of transactions (by way of merger, sale, acquisition, financing, transfer, leveraged buyout or otherwise), whether or not a formal assignment or hypothecation of this Lease or Lessee's assets occurs, which results or will result in a reduction of the Net Worth of Lessee by an amount greater than 25% of such Net Worth as it was represented at the time of the execution of this Lease or at the time of the most recent assignment to which Lessor has consented, or as it exists immediately prior to said transaction or transactions constituting such reduction, whichever was or is greater, shall be considered an assignment of this Lease to which Lessor may withhold its consent. "Net Worth of Lessee" shall mean the net worth of Lessee (excluding any guarantors) established under generally accepted accounting principles.

(d) An assignment or subletting without consent shall, at Lessor's option, be a Default curable after notice per Paragraph 13.1(d), or a noncurable Breach without the necessity of any notice and grace period. If Lessor elects to treat such unapproved assignment or subletting as a noncurable Breach, Lessor may either: terminate this Lease, or (ii) upon 30 days written notice, increase the monthly Base Rent to 110% of the Base Rent then in effect. Further, in the event of such Breach and rental adjustment, (i) the purchase price of any option to purchase the Premises held by Lessee shall be subject to similar adjustment to 110% of the price previously in effect, and (ii) all fixed and nonfixed rental adjustments scheduled during the remainder of the Lease term shall be increased to 110% of the scheduled adjusted rent.

(e) Lessee's remedy for any breach of Paragraph 12.1 by Lessor shall be limited to compensatory damages and/or injunctive relief.

(f) Lessor may reasonably withhold consent to a proposed assignment or subletting if Lessee is in Default at the time consent is requested.

(g) Notwithstanding the foregoing, allowing a de minimis portion of the Premises, i.e. 20 square feet or less, to be used by a third party vendor in connection with the installation of a vending machine or payphone shall not constitute a subletting.

12.2 **Terms and Conditions Applicable to Assignment and Subletting.**

(a) Regardless of Lessor's consent, no assignment or subletting shall : (i) be effective without the express written assumption by such assignee or sublessee of the obligations of Lessee under this Lease, (ii) release Lessee of any obligations hereunder, or (iii) alter the primary liability of Lessee for the payment of Rent or for the performance of any other obligations to be performed by Lessee.

(b) Lessor may accept Rent or performance of Lessee's obligations from any person other than Lessee pending approval or disapproval of an assignment. Neither a delay in the approval or disapproval of such assignment nor the acceptance of Rent or performance shall constitute a waiver or estoppel of Lessor's right to exercise its remedies for Lessee's Default or Breach.

(c) Lessor's consent to any assignment or subletting shall not constitute a consent to any subsequent assignment or subletting.

(d) In the event of any Default or Breach by Lessee, Lessor may proceed directly against Lessee, any Guarantors or anyone else responsible for the performance of Lessee's obligations under this Lease, including any assignee or sublessee, without first exhausting Lessor's remedies against any other person or entity responsible therefor to Lessor, or any security held by Lessor.

(e) Each request for consent to an assignment or subletting shall be in writing, accompanied by information relevant to Lessor's determination as to the financial and operational responsibility and appropriateness of the proposed assignee or sublessee, including but not limited to the intended use and/or required modification of the Premises, if any, together with a fee of $500 as consideration for Lessor's considering and processing said request. Lessee agrees to provide Lessor with such other or additional information and/or documentation as may be reasonably requested. (See also Paragraph 36)

(f) Any assignee of, or sublessee under, this Lease shall, by reason of accepting such assignment, entering into such sublease, or entering into possession of the Premises or any portion thereof, be deemed to have assumed and agreed to conform and comply with each and every term, covenant, condition and obligation herein to be observed or performed by Lessee during the term of said assignment or sublease, other than such obligations as are contrary to or inconsistent with provisions of an assignment or sublease to which Lessor has specifically consented to in writing.

(g) Lessor's consent to any assignment or subletting shall not transfer to the assignee or sublessee any Option granted to the original Lessee by this Lease unless such transfer is specifically consented to by Lessor in writing. (See Paragraph 39.2)

12.3 **Additional Terms and Conditions Applicable to Subletting**. The following terms and conditions shall apply to any subletting by Lessee of all or any part of the Premises and shall be deemed included in all subleases under this Lease whether or not expressly incorporated therein:

(a) Lessee hereby assigns and transfers to Lessor all of Lessee's interest in all Rent payable on any sublease, and Lessor may collect such Rent and apply same toward Lessee's obligations under this Lease; provided, however, that until a Breach shall occur in the performance of Lessee's obligations, Lessee may collect said Rent. In the event that the amount collected by Lessor exceeds Lessee's then outstanding obligations any such excess shall be refunded to Lessee. Lessor shall not, by reason of the foregoing or any assignment of such sublease, nor by reason of the collection of Rent, be deemed liable to the sublessee for any failure of Lessee to perform and comply with any of Lessee's obligations to such sublessee. Lessee hereby irrevocably authorizes and directs any such sublessee, upon receipt of a written notice from Lessor stating that a Breach exists in the performance of Lessee's obligations under this Lease, to pay to Lessor all Rent due and to become due under the sublease. Sublessee shall rely upon any such notice from

Lessor and shall pay all Rents to Lessor without any obligation or right to inquire as to whether such Breach exists, notwithstanding any claim from Lessee to the contrary.

(b) In the event of a Breach by Lessee, Lessor may, at its option, require sublessee to attorn to Lessor, in which event Lessor shall undertake the obligations of the sublessor under such sublease from the time of the exercise of said option to the expiration of such sublease; provided, however, Lessor shall not be liable for any prepaid rents or security deposit paid by such sublessee to such sublessor or for any prior Defaults or Breaches of such sublessor.

(c) Any matter requiring the consent of the sublessor under a sublease shall also require the consent of Lessor.

(d) No sublessee shall further assign or sublet all or any part of the Premises without Lessor's prior written consent.

(e) Lessor shall deliver a copy of any notice of Default or Breach by Lessee to the sublessee, who shall have the right to cure the Default of Lessee within the grace period, if any, specified in such notice. The sublessee shall have a right of reimbursement and offset from and against Lessee for any such Defaults cured by the sublessee.

13. Default; Breach; Remedies.

13.1 **Default; Breach**. A "**Default**" is defined as a failure by the Lessee to comply with or perform any of the terms, covenants, conditions or Rules and Regulations under this Lease. A "Breach" is defined as the occurrence of one or more of the following Defaults, and the failure of Lessee to cure such Default within any applicable grace period:

(i) The abandonment of the Premises; the vacating of the Premises prior to the expiration or termination of this Lease without providing a commercially reasonable level of security, or where the coverage of the property insurance described in Paragraph 8.3 is jeopardized as a result thereof, or without providing reasonable assurances to minimize potential vandalism; or failure to deliver to Lessor exclusive possession of the entire Premises in accordance herewith prior to the expiration or termination of this Lease.

(ii) The failure of Lessee to (i) make any payment of Rent or any Security Deposit required to be made by Lessee hereunder, whether to Lessor or to a third party, when due, (ii) to provide reasonable evidence of insurance or surety bond, or (iii) to fulfill any obligation under this Lease which endangers or threatens life or property, where such failure continues for a period of 3 business days following written notice to Lessee. THE ACCEPTANCE BY LESSOR OF A PARTIAL PAYMENT OF RENT OR SECURITY DEPOSIT SHALL NOT CONSTITUTE A WAIVER OF ANY OF LESSOR'S RIGHTS, INCLUDING LESSOR'S RIGHT TO RECOVER POSSESSION OF THE PREMISES.

(iii) The failure of Lessee to allow Lessor and/or its agents access to the Premises or the commission of waste, act or acts constituting public or private nuisance, and/or an illegal activity on the Premises by Lessee, where such actions continue for a period of 3 business days following written notice to Lessee. In the event that Lessee commits waste, a nuisance or an illegal activity a second time then, the Lessor may elect to treat such conduct as a noncurable Breach rather than a Default.

(iv) The failure by Lessee to provide (i) reasonable written evidence of compliance with Applicable Requirements, (ii) the service contracts, (iii) the rescission of an unauthorized assignment or subletting, (iv) an Estoppel Certificate or financial statements, (v) a requested subordination, (vi) evidence concerning any guaranty and/or Guarantor, (vii) any document requested under Paragraph 41, (viii) material safety data sheets (MSDS), or (ix) any other documentation or information which Lessor may reasonably require of Lessee under the terms of this Lease, where any such failure continues for a period of 10 days following written notice to Lessee.

(v) A Default by Lessee as to the terms, covenants, conditions or provisions of this Lease, or of the rules adopted under Paragraph 2.9 hereof, other than those described in subparagraphs 13.1(a), (b), (c) or (d), above, where such Default continues for a period of 30 days after written notice; provided, however, that if the nature of Lessee's Default is such that more than 30 days are reasonably required for its cure, then it shall not be deemed to be a Breach if Lessee commences such cure within said 30 day period and thereafter diligently prosecutes such cure to completion.

(vi) The occurrence of any of the following events: (i) the making of any general arrangement or assignment for the benefit of creditors; (ii) becoming a "debtor" as defined in 11 U.S.C. § 101 or any successor statute thereto (unless, in the case of a petition filed against Lessee, the same is dismissed within 60 days); (iii) the appointment of a trustee or receiver to take possession of substantially all of Lessee's assets located at the Premises or of Lessee's interest in this Lease, where possession is not restored to Lessee within 30 days; or (iv) the attachment, execution or other judicial seizure of substantially all of Lessee's assets located at the Premises or of Lessee's interest in this Lease, where such seizure is not discharged within 30 days; provided, however, in the event that any provision of this subparagraph is contrary to any applicable law, such provision shall be of no force or effect, and not affect the validity of the remaining provisions.

(vii) The discovery that any financial statement of Lessee or of any Guarantor given to Lessor was materially false.

(viii) If the performance of Lessee's obligations under this Lease is guaranteed: (i) the death of a Guarantor, (ii) the termination of a Guarantor's liability with respect to this Lease other than in accordance with the terms of such guaranty, (iii) a Guarantor's becoming insolvent or the subject of a bankruptcy filing, (iv) a Guarantor's refusal to honor the guaranty, or (v) a Guarantor's breach of its guaranty obligation on an anticipatory basis, and Lessee's failure, within 60 days following written notice of any such event, to provide written alternative assurance or security, which, when coupled with the then existing resources of Lessee, equals or exceeds the combined financial resources of Lessee and the Guarantors that existed at the time of execution of this Lease.

13.2 **Remedies**. If Lessee fails to perform any of its affirmative duties or obligations, within 10 days after written notice (or in case of an emergency, without notice), Lessor may, at its option, perform such duty or obligation on Lessee's behalf, including but not limited to the obtaining of reasonably required bonds, insurance policies, or governmental licenses, permits or approvals. Lessee shall pay to Lessor an amount equal to 115% of the costs and expenses incurred by Lessor in such performance upon receipt of an invoice therefor. In the event of a Breach, Lessor may, with or without further notice or demand, and without limiting Lessor in the exercise of any right or remedy which Lessor may have by reason of such Breach:

(a) Terminate Lessee's right to possession of the Premises by any lawful means, in which case this Lease shall terminate and Lessee shall immediately surrender possession to Lessor. In such event Lessor shall be entitled to recover from Lessee: (i) the unpaid Rent which had been earned at the time of termination;
the worth at the time of award of the amount by which the unpaid rent which would have been earned after termination until the time of award exceeds the amount of such rental loss that the Lessee proves could have been reasonably avoided; (iii) the worth at the time of award of the amount by which the unpaid rent for the balance of the term after the time of award exceeds the amount of such rental loss that the Lessee proves could be reasonably avoided; and (iv) any other amount necessary to compensate Lessor for all the detriment proximately caused by the Lessee's failure to perform its obligations under this Lease or which in the ordinary course of things would be likely to result therefrom, including but not limited to the cost of recovering possession of the Premises, expenses of reletting, including necessary renovation and alteration of the Premises, reasonable attorneys' fees, and that portion of any leasing commission paid by Lessor in connection with this Lease applicable to the unexpired term of this Lease. Lessor and Lessee agree that the damages to be incurred by the Lessor in the event of Lessee's default of the Lease would be difficult or impossible to calculate and the parties therefore intend to provide by the foregoing for liquidated damages and not a penalty and agree that the sum provided is a reasonable preestimate of the probable loss. The worth at the time of award of the amount referred to in provision (iii) of the immediately preceding sentence shall be computed by discounting such amount at the discount rate of the Federal Reserve Bank of the District within which the Premises are located at the time of award plus one percent. Efforts by Lessor to mitigate damages caused by Lessee's Breach of this Lease shall not waive Lessor's right to recover any damages to which Lessor is otherwise entitled. If termination of this Lease is obtained through the provisional remedy of unlawful detainer, Lessor shall have the right to recover in such proceeding any unpaid Rent and damages as are recoverable therein, or Lessor may reserve the right to recover all or any part thereof in a separate suit. If a notice and grace period required under Paragraph 13.1 was not previously given, a notice to pay rent or quit, or to perform or quit given to Lessee under the unlawful detainer statute shall also constitute the notice required by Paragraph 13.1. In such case, the applicable grace period required by Paragraph 13.1 and the unlawful detainer statute shall run concurrently, and the failure of Lessee to cure the Default within the greater of the two such grace periods shall constitute both an unlawful detainer and a Breach of this Lease entitling Lessor to the remedies provided for in this Lease and/or by said statute.

(b) Continue the Lease and Lessee's right to possession and recover the Rent as it becomes due, in which event Lessee may sublet or assign, subject only to reasonable limitations. Acts of maintenance, efforts to relet, and/or the appointment of a receiver to protect the Lessor's interests, shall not constitute a termination of the Lessee's right to possession.

(c) Pursue any other remedy now or hereafter available under the laws or judicial decisions of the state wherein the Premises are located. The expiration or termination of this Lease and/or the termination of Lessee's right to possession shall not relieve Lessee from liability under any indemnity provisions of this Lease as to matters occurring or accruing during the term hereof or by reason of Lessee's occupancy of the Premises.

13.3 **Inducement Recapture**. Any agreement for free or abated rent or other charges, the cost of tenant improvements for Lessee paid for or performed by Lessor, or for the giving or paying by Lessor to or for Lessee of any cash or other bonus, inducement or consideration for Lessee's entering into this Lease, all of which concessions are hereinafter referred to as "Inducement Provisions," shall be deemed conditioned upon Lessee's full and faithful performance of all of the terms, covenants and conditions of this Lease. Upon Breach of this Lease by Lessee, any such Inducement Provision shall automatically be deemed deleted from this Lease and of no further force or effect, and any rent, other charge, bonus, inducement or consideration theretofore abated, given or paid by Lessor under such

an Inducement Provision shall be immediately due and payable by Lessee to Lessor, notwithstanding any subsequent cure of said Breach by Lessee. The acceptance by Lessor of rent or the cure of the Breach which initiated the operation of this paragraph shall not be deemed a waiver by Lessor of the provisions of this paragraph unless specifically so stated in writing by Lessor at the time of such acceptance.

13.4 **Late Charges**. Lessee hereby acknowledges that late payment by Lessee of Rent will cause Lessor to incur costs not contemplated by this Lease, the exact amount of which will be extremely difficult to ascertain. Such costs include, but are not limited to, processing and accounting charges, and late charges which may be imposed upon Lessor by any Lender. Accordingly, if any Rent shall not be received by Lessor within 5 days after such amount shall be due, then, without any requirement for notice to Lessee, Lessee shall immediately pay to Lessor a onetime late charge equal to 10% of each such overdue amount or $100, whichever is greater. The parties hereby agree that such late charge represents a fair and reasonable estimate of the costs Lessor will incur by reason of such late payment. Acceptance of such late charge by Lessor shall in no event constitute a waiver of Lessee's Default or Breach with respect to such overdue amount, nor prevent the exercise of any of the other rights and remedies granted hereunder. In the event that a late charge is payable hereunder, whether or not collected, for 3 consecutive installments of Base Rent, then notwithstanding any provision of this Lease to the contrary, Base Rent shall, at Lessor's option, become due and payable quarterly in advance.

13.5 **Interest**. Any monetary payment due Lessor hereunder, other than late charges, not received by Lessor, when due shall bear interest from the 31st day after it was due. The interest ("Interest") charged shall be computed at the rate of 10% per annum but shall not exceed the maximum rate allowed by law. Interest is payable in addition to the potential late charge provided for in Paragraph 13.4.

13.6 **Breach by Lessor**.

(a) Notice of Breach. Lessor shall not be deemed in breach of this Lease unless Lessor fails within a reasonable time to perform an obligation required to be performed by Lessor. For purposes of this Paragraph, a reasonable time shall in no event be less than 30 days after receipt by Lessor, and any Lender whose name and address shall have been furnished to Lessee in writing for such purpose, of written notice specifying wherein such obligation of Lessor has not been performed; provided, however, that if the nature of Lessor's obligation is such that more than 30 days are reasonably required for its performance, then Lessor shall not be in breach if performance is commenced within such 30 day period and thereafter diligently pursued to completion.

(b) Performance by Lessee on Behalf of Lessor. In the event that neither Lessor nor Lender cures said breach within 30 days after receipt of said notice, or if having commenced said cure they do not diligently pursue it to completion, then Lessee may elect to cure said breach at Lessee's expense and offset from Rent the actual and reasonable cost to perform such cure, provided however, that such offset shall not exceed an amount equal to the greater of one month's Base Rent or the Security Deposit, reserving Lessee's right to reimbursement from Lessor for any such expense in excess of such offset. Lessee shall document the cost of said cure and supply said documentation to Lessor.

14. Condemnation. If the Premises or any portion thereof are taken under the power of eminent domain or sold under the threat of the exercise of said power (collectively "Condemnation"), this Lease shall terminate as to the part taken as of the date the condemning authority takes title or possession, whichever first occurs. If more than 10% of the floor area of the Unit, or more than 25% of the parking spaces is taken by Condemnation, Lessee may, at Lessee's option, to be exercised in writing within 10 days after Lessor shall have given Lessee written notice of such taking (or in the absence of such notice, within 10 days after the condemning authority shall have taken possession) terminate this Lease as of the date the condemning authority takes such possession. If Lessee does not terminate this Lease in accordance with the foregoing, this Lease shall remain in full force and effect as to the portion of the Premises remaining, except that the Base Rent shall be reduced in proportion to the reduction in utility of the Premises caused by such Condemnation. Condemnation awards and/or payments shall be the property of Lessor, whether such award shall be made as compensation for diminution in value of the leasehold, the value of the part taken, or for severance damages; provided, however, that Lessee shall be entitled to any compensation paid by the condemnor for Lessee's relocation expenses, loss of business goodwill and/or Trade Fixtures, without regard to whether or not this Lease is terminated pursuant to the provisions of this Paragraph. All Alterations and Utility Installations made to the Premises by Lessee, for purposes of Condemnation only, shall be considered the property of the Lessee and Lessee shall be entitled to any and all compensation which is payable therefor. In the event that this Lease is not terminated by reason of the Condemnation, Lessor shall repair any damage to the Premises caused by such Condemnation.

15. Brokerage Fees.

15.1 ~~**Additional Commission**. In addition to the payments owed pursuant to Paragraph 1.10 above, Lessor agrees that: (a) if Lessee exercises any Option, (b) if Lessee or anyone affiliated with Lessee acquires from Lessor any rights to the Premises or other premises owned by Lessor and located within the Project, (c) if Lessee remains in possession of the Premises, with the consent of Lessor, after the expiration of this Lease, or (d) if Base Rent is increased, whether by agreement or operation of an escalation clause herein, then, Lessor shall pay Brokers a fee in accordance with the fee schedule of the Brokers in effect at the time the Lease was executed. The provisions of this paragraph are intended to supersede the provisions of any earlier agreement to the contrary.~~

15.2 **Assumption of Obligations**. Any buyer or transferee of Lessor's interest in this Lease shall be deemed to have assumed Lessor's obligation hereunder. Brokers shall be third party beneficiaries of the provisions of Paragraphs 1.10, 15, 22 and 31. If Lessor fails to pay to Brokers any amounts due as and for brokerage fees pertaining to this Lease when due, then such amounts shall accrue Interest. In addition, if Lessor fails to pay any amounts to Lessee's Broker when due, Lessee's Broker may send written notice to Lessor and Lessee of such failure and if Lessor fails to pay such amounts within 10 days after said notice, Lessee shall pay said monies to its Broker and offset such amounts against Rent. In addition, Lessee's Broker shall be deemed to be a third party beneficiary of any commission agreement entered into by and/or between Lessor and Lessor's Broker for the limited purpose of collecting any brokerage fee owed.

15.3 **Representations and Indemnities of Broker Relationships**. Lessee and Lessor each represent and warrant to the other that it has had no dealings with any person, firm, broker, agent or finder (other than the Brokers and Agents, if any) in connection with this Lease, and that no one other than said named Brokers and Agents is entitled to any commission or finder's fee in connection herewith. Lessee and Lessor do each hereby agree to indemnify, protect, defend and hold the other harmless from and against liability for compensation or charges which may be claimed by any such unnamed broker, finder or other similar party by reason of any dealings or actions of the indemnifying Party, including any costs, expenses, attorneys' fees reasonably incurred with respect thereto.

16. Estoppel Certificates.

(a) Each Party (as "Responding Party") shall within 10 days after written notice from the other Party (the "Requesting Party") execute, acknowledge and deliver to the Requesting Party a statement in writing in form similar to the then most current "Estoppel Certificate" form published by AIR CRE, plus such additional information, confirmation and/or statements as may be reasonably requested by the Requesting Party.

(b) If the Responding Party shall fail to execute or deliver the Estoppel Certificate within such 10 day period, the Requesting Party may execute an Estoppel Certificate stating that: (i) the Lease is in full force and effect without modification except as may be represented by the Requesting Party, (ii) there are no uncured defaults in the Requesting Party's performance, and (iii) if Lessor is the Requesting Party, not more than one month's rent has been paid in advance. Prospective purchasers and encumbrancers may rely upon the Requesting Party's Estoppel Certificate, and the Responding Party shall be estopped from denying the truth of the facts contained in said Certificate. In addition, Lessee acknowledges that any failure on its part to provide such an Estoppel Certificate will expose Lessor to risks and potentially cause Lessor to incur costs not contemplated by this Lease, the extent of which will be extremely difficult to ascertain. Accordingly, should the Lessee fail to execute and/or deliver a requested Estoppel Certificate in a timely fashion the monthly Base Rent shall be automatically increased, without any requirement for notice to Lessee, by an amount equal to 10% of the then existing Base Rent or $100, whichever is greater for remainder of the Lease. The Parties agree that such increase in Base Rent represents fair and reasonable compensation for the additional risk/costs that Lessor will incur by reason of Lessee's failure to provide the Estoppel Certificate. Such increase in Base Rent shall in no event constitute a waiver of Lessee's Default or Breach with respect to the failure to provide the Estoppel Certificate nor prevent the exercise of any of the other rights and remedies granted hereunder.

(c) If Lessor desires to finance, refinance, or sell the Premises, or any part thereof, Lessee and all Guarantors shall within 10 days after written notice from Lessor deliver to any potential lender or purchaser designated by Lessor such financial statements as may be reasonably required by such lender or purchaser, including but not limited to Lessee's financial statements for the past 3 years. All such financial statements shall be received by Lessor and such lender or purchaser in confidence and shall be used only for the purposes herein set forth.

17. Definition of Lessor. The term "Lessor" as used herein shall mean the owner or owners at the time in question of the fee title to the Premises, or, if this is a sublease, of the Lessee's interest in the prior lease. In the event of a transfer of Lessor's title or interest in the Premises or this Lease, Lessor shall deliver to the transferee or assignee (in cash or by credit) any unused Security Deposit held by Lessor. Upon such transfer or assignment and delivery of the Security Deposit, as aforesaid, the prior Lessor shall be relieved of all liability with respect to the obligations and/or

covenants under this Lease thereafter to be performed by the Lessor. Subject to the foregoing, the obligations and/or covenants in this Lease to be performed by the Lessor shall be binding only upon the Lessor as hereinabove defined.

18. **Severability**. The invalidity of any provision of this Lease, as determined by a court of competent jurisdiction, shall in no way affect the validity of any other provision hereof.

19. **Days**. Unless otherwise specifically indicated to the contrary, the word "days" as used in this Lease shall mean and refer to calendar days.

20. **Limitation on Liability**. The obligations of Lessor under this Lease shall not constitute personal obligations of Lessor, or its partners, members, directors, officers or shareholders, and Lessee shall look to the Premises, and to no other assets of Lessor, for the satisfaction of any liability of Lessor with respect to this Lease, and shall not seek recourse against Lessor's partners, members, directors, officers or shareholders, or any of their personal assets for such satisfaction.

21. **Time of Essence**. Time is of the essence with respect to the performance of all obligations to be performed or observed by the Parties under this Lease.

22. **No Prior or Other Agreements; Broker Disclaimer**. This Lease contains all agreements between the Parties with respect to any matter mentioned herein, and no other prior or contemporaneous agreement or understanding shall be effective. Lessor and Lessee each represents and warrants to the Brokers that it has made, and is relying solely upon, its own investigation as to the nature, quality, character and financial responsibility of the other Party to this Lease and as to the use, nature, quality and character of the Premises. Brokers have no responsibility with respect thereto or with respect to any default or breach hereof by either Party.

23. **Notices.**

23.1 **Notice Requirements**. All notices required or permitted by this Lease or applicable law shall be in writing and may be delivered in person (by hand or by courier) or may be sent by regular, certified or registered mail or U.S. Postal Service Express Mail, with postage prepaid, or by facsimile transmission, or by email, and shall be deemed sufficiently given if served in a manner specified in this Paragraph 23. The addresses noted adjacent to a Party's signature on this Lease shall be that Party's address for delivery or mailing of notices. Either Party may by written notice to the other specify a different address for notice, except that upon Lessee's taking possession of the Premises, the Premises shall constitute Lessee's address for notice. A copy of all notices to Lessor shall be concurrently transmitted to such party or parties at such addresses as Lessor may from time to time hereafter designate in writing.

23.2 **Date of Notice**. Any notice sent by registered or certified mail, return receipt requested, shall be deemed given on the date of delivery shown on the receipt card, or if no delivery date is shown, the postmark thereon. If sent by regular mail the notice shall be deemed given 72 hours after the same is addressed as required herein and mailed with postage prepaid. Notices delivered by United States Express Mail or overnight courier that guarantees next day delivery shall be deemed given 24 hours after delivery of the same to the Postal Service or courier. Notices delivered by hand, or transmitted by facsimile transmission or by email shall be deemed delivered upon actual receipt. If notice is received on a Saturday, Sunday or legal holiday, it shall be deemed received on the next business day.

Options. Notwithstanding the foregoing, in order to exercise any Options (see paragraph 39), the Notice must be sent by Certified Mail (return receipt requested), Express Mail (signature required), courier (signature required) or some other methodology that provides a receipt establishing the date the notice was received by the Lessor.

24. **Waivers.**

(a) No waiver by Lessor of the Default or Breach of any term, covenant or condition hereof by Lessee, shall be deemed a waiver of any other term, covenant or condition hereof, or of any subsequent Default or Breach by Lessee of the same or of any other term, covenant or condition hereof. Lessor's consent to, or approval of, any act shall not be deemed to render unnecessary the obtaining of Lessor's consent to, or approval of, any subsequent or similar act by Lessee, or be construed as the basis of an estoppel to enforce the provision or provisions of this Lease requiring such consent.

(b) The acceptance of Rent by Lessor shall not be a waiver of any Default or Breach by Lessee. Any payment by Lessee may be accepted by Lessor on account of monies or damages due Lessor, notwithstanding any qualifying statements or conditions made by Lessee in connection therewith, which such statements and/or conditions shall be of no force or effect whatsoever unless specifically agreed to in writing by Lessor at or before the time of deposit of such payment.

(c) THE PARTIES AGREE THAT THE TERMS OF THIS LEASE SHALL GOVERN WITH REGARD TO ALL MATTERS RELATED THERETO AND HEREBY WAIVE THE PROVISIONS OF ANY PRESENT OR FUTURE STATUTE TO THE EXTENT THAT SUCH STATUTE IS INCONSISTENT WITH THIS LEASE.

25. Disclosures Regarding The Nature of a Real Estate Agency Relationship.

(a) When entering into a discussion with a real estate agent regarding a real estate transaction, a Lessor or Lessee should from the outset understand what type of agency relationship or representation it has with the agent or agents in the transaction. Lessor and Lessee acknowledge being advised by the Brokers in this transaction, as follows:

(i) *Lessor's Agent*. A Lessor's agent under a listing agreement with the Lessor acts as the agent for the Lessor only. A Lessor's agent or subagent has the following affirmative obligations: To the Lessor: A fiduciary duty of utmost care, integrity, honesty, and loyalty in dealings with the Lessor. To the Lessee and the Lessor: (a) Diligent exercise of reasonable skills and care in performance of the agent's duties. (b) A duty of honest and fair dealing and good faith. (c) A duty to disclose all facts known to the agent materially affecting the value or desirability of the property that are not known to, or within the diligent attention and observation of, the Parties. An agent is not obligated to reveal to either Party any confidential information obtained from the other Party which does not involve the affirmative duties set forth above.

(ii) *Lessee's Agent*. An agent can agree to act as agent for the Lessee only. In these situations, the agent is not the Lessor's agent, even if by agreement the agent may receive compensation for services rendered, either in full or in part from the Lessor. An agent acting only for a Lessee has the following affirmative obligations. To the Lessee: A fiduciary duty of utmost care, integrity, honesty, and loyalty in dealings with the Lessee. To the Lessee and the Lessor: (a) Diligent exercise of reasonable skills and care in performance of the agent's duties. (b) A duty of honest and fair dealing and good faith. (c) A duty to disclose all facts known to the agent materially affecting the value or desirability of the property that are not known to, or within the diligent attention and observation of, the Parties. An agent is not obligated to reveal to either Party any confidential information obtained from the other Party which does not involve the affirmative duties set forth above.

(iii) *Agent Representing Both Lessor and Lessee*. A real estate agent, either acting directly or through one or more associate licensees, can legally be the agent of both the Lessor and the Lessee in a transaction, but only with the knowledge and consent of both the Lessor and the Lessee. In a dual agency situation, the agent has the following affirmative obligations to both the Lessor and the Lessee: (a) A fiduciary duty of utmost care, integrity, honesty and loyalty in the dealings with either Lessor or the Lessee. (b) Other duties to the Lessor and the Lessee as stated above in subparagraphs (i) or (ii). In representing both Lessor and Lessee, the agent may not, without the express permission of the respective Party, disclose to the other Party confidential information, including, but not limited to, facts relating to either Lessee's or Lessor's financial position, motivations, bargaining position, or other personal information that may impact rent, including Lessor's willingness to accept a rent less than the listing rent or Lessee's willingness to pay rent greater than the rent offered. The above duties of the agent in a real estate transaction do not relieve a Lessor or Lessee from the responsibility to protect their own interests. Lessor and Lessee should carefully read all agreements to assure that they adequately express their understanding of the transaction. A real estate agent is a person qualified to advise about real estate. If legal or tax advice is desired, consult a competent professional. Both Lessor and Lessee should strongly consider obtaining tax advice from a competent professional because the federal and state tax consequences of a transaction can be complex and subject to change.

(b) Brokers have no responsibility with respect to any default or breach hereof by either Party. The Parties agree that no lawsuit or other legal proceeding involving any breach of duty, error or omission relating to this Lease may be brought against Broker more than one year after the Start Date and that the liability (including court costs and attorneys' fees), of any Broker with respect to any such lawsuit and/or legal proceeding shall not exceed the fee received by such Broker pursuant to this Lease; provided, however, that the foregoing limitation on each Broker's liability shall not be applicable to any gross negligence or willful misconduct of such Broker.

(c) Lessor and Lessee agree to identify to Brokers as "Confidential" any communication or information given Brokers that is considered by such Party to be confidential.

26. No Right To Holdover. Lessee has no right to retain possession of the Premises or any part thereof beyond the expiration or termination of this Lease. At or prior to the expiration or termination of this Lease Lessee shall deliver exclusive possession of the Premises to Lessor. For purposes of this provision and Paragraph 13.1(a), exclusive possession shall mean that Lessee shall have vacated the Premises, removed all of its personal property therefrom and that the Premises have been returned in the condition specified in this Lease. In the event that Lessee does not deliver exclusive possession to Lessor as specified above, then Lessor's damages during any holdover period shall be computed at the amount of the Rent (as defined in Paragraph 4.1) due during the last full month before the expiration or termination of this Lease (disregarding any temporary abatement of Rent that may have been in effect), but with

Base Rent being 150% of the Base Rent payable during such last full month. Nothing contained herein shall be construed as consent by Lessor to any holding over by Lessee.

27. Cumulative Remedies. No remedy or election hereunder shall be deemed exclusive but shall, wherever possible, be cumulative with all other remedies at law or in equity.

28. Covenants and Conditions; Construction of Agreement. All provisions of this Lease to be observed or performed by Lessee are both covenants and conditions. In construing this Lease, all headings and titles are for the convenience of the Parties only and shall not be considered a part of this Lease. Whenever required by the context, the singular shall include the plural and vice versa. This Lease shall not be construed as if prepared by one of the Parties, but rather according to its fair meaning as a whole, as if both Parties had prepared it.

29. Binding Effect; Choice of Law. This Lease shall be binding upon the Parties, their personal representatives, successors and assigns and be governed by the laws of the State in which the Premises are located. Any litigation between the Parties hereto concerning this Lease shall be initiated in the county in which the Premises are located. Signatures to this Lease accomplished by means of electronic signature or similar technology shall be legal and binding.

30. Subordination; Attornment; NonDisturbance.

30.1 **Subordination**. This Lease and any Option granted hereby shall be subject and subordinate to any ground lease, mortgage, deed of trust, or other hypothecation or security device (collectively, "Security Device"), now or hereafter placed upon the Premises, to any and all advances made on the security thereof, and to all renewals, modifications, and extensions thereof. Lessee agrees that the holders of any such Security Devices (in this Lease together referred to as "Lender") shall have no liability or obligation to perform any of the obligations of Lessor under this Lease. Any Lender may elect to have this Lease and/or any Option granted hereby superior to the lien of its Security Device by giving written notice thereof to Lessee, whereupon this Lease and such Options shall be deemed prior to such Security Device, notwithstanding the relative dates of the documentation or recordation thereof.

30.2 **Attornment**. In the event that Lessor transfers title to the Premises, or the Premises are acquired by another upon the foreclosure or termination of a Security Device to which this Lease is subordinated (i) Lessee shall, subject to the nondisturbance provisions of Paragraph 30.3, attorn to such new owner, and upon request, enter into a new lease, containing all of the terms and provisions of this Lease, with such new owner for the remainder of the term hereof, or, at the election of the new owner, this Lease will automatically become a new lease between Lessee and such new owner, for the remainder of the term hereof and (ii) Lessor shall thereafter be relieved of any further obligations hereunder and such new owner shall assume all of Lessor's obligations, except that such new owner shall not: (a) be liable for any act or omission of any prior lessor or with respect to events occurring prior to acquisition of ownership; (b) be subject to any offsets or defenses which Lessee might have against any prior lessor, (c) be bound by prepayment of more than one month's rent, or (d) be liable for the return of any security deposit paid to any prior lessor which was not paid or credited to such new owner.

30.3 **NonDisturbance**. With respect to Security Devices entered into by Lessor aGer the execution of this Lease, Lessee's subordination of this Lease shall be subject to receiving a commercially reasonable nondisturbance agreement (a "NonDisturbance Agreement") from the Lender which NonDisturbance Agreement provides that Lessee's possession of the Premises, and this Lease, including any options to extend the term hereof, will not be disturbed so long as Lessee is not in Breach hereof and attorns to the record owner of the Premises. Further, within 60 days after the execution of this Lease, Lessor shall, if requested by Lessee, use its commercially reasonable efforts to obtain a NonDisturbance Agreement from the holder of any preexisting Security Device which is secured by the Premises. In the event that Lessor is unable to provide the NonDisturbance Agreement within said 60 days, then Lessee may, at Lessee's option, directly contact Lender and attempt to negotiate for the execution and delivery of a NonDisturbance Agreement.

30.4 **SelfExecuting**. The agreements contained in this Paragraph 30 shall be effective without the execution of any further documents; provided, however, that, upon written request from Lessor or a Lender in connection with a sale, financing or refinancing of the Premises, Lessee and Lessor shall execute such further writings as may be reasonably required to separately document any subordination, attornment and/or NonDisturbance Agreement provided for herein.

31. Attorneys' Fees. If any Party or Broker brings an action or proceeding involving the Premises whether founded in tort, contract or equity, or to declare rights hereunder, the Prevailing Party (as hereafter defined) in any such proceeding, action, or appeal thereon, shall be entitled to reasonable attorneys' fees. Such fees may be awarded in the same suit or recovered in a separate suit, whether or not such action or proceeding is pursued to decision or

judgment. The term, "**Prevailing Party**" shall include, without limitation, a Party or Broker who substantially obtains or defeats the relief sought, as the case may be, whether by compromise, settlement, judgment, or the abandonment by the other Party or Broker of its claim or defense. The attorneys' fees award shall not be computed in accordance with any court fee schedule, but shall be such as to fully reimburse all attorneys' fees reasonably incurred. In addition, Lessor shall be entitled to attorneys' fees, costs and expenses incurred in the preparation and service of notices of Default and consultations in connection therewith, whether or not a legal action is subsequently commenced in connection with such Default or resulting Breach ($200 is a reasonable minimum per occurrence for such services and consultation).

32. Lessor's Access; Showing Premises; Repairs. Lessor and Lessor's agents shall have the right to enter the Premises at any time, in the case of an emergency, and otherwise at reasonable times aGer reasonable prior notice for the purpose of showing the same to prospective purchasers, lenders, or tenants, and making such alterations, repairs, improvements or additions to the Premises as Lessor may deem necessary or desirable and the erecting, using and maintaining of utilities, services, pipes and conduits through the Premises and/or other premises as long as there is no material adverse effect on Lessee's use of the Premises. All such activities shall be without abatement of rent or liability to Lessee.

33. Auctions. Lessee shall not conduct, nor permit to be conducted, any auction upon the Premises without Lessor's prior written consent. Lessor shall not be obligated to exercise any standard of reasonableness in determining whether to permit an auction.

34. Signs. Lessor may place on the Premises ordinary "For Sale" signs at any time and ordinary "For Lease" signs during the last 6 months of the term hereof. Except for ordinary "For Sublease" signs which may be placed only on the Premises, Lessee shall not place any sign upon the Project without Lessor's prior written consent. All signs must comply with all Applicable Requirements.

35. Termination; Merger. Unless specifically stated otherwise in writing by Lessor, the voluntary or other surrender of this Lease by Lessee, the mutual termination or cancellation hereof, or a termination hereof by Lessor for Breach by Lessee, shall automatically terminate any sublease or lesser estate in the Premises; provided, however, that Lessor may elect to continue any one or all existing subtenancies. Lessor's failure within 10 days following any such event to elect to the contrary by written notice to the holder of any such lesser interest, shall constitute Lessor's election to have such event constitute the termination of such interest.

36. Consents. All requests for consent shall be in writing. Except as otherwise provided herein, wherever in this Lease the consent of a Party is required to an act by or for the other Party, such consent shall not be unreasonably withheld or delayed. Lessor's actual reasonable costs and expenses (including but not limited to architects', attorneys', engineers' and other consultants' fees) incurred in the consideration of, or response to, a request by Lessee for any Lessor consent, including but not limited to consents to an assignment, a subletting or the presence or use of a Hazardous Substance, shall be paid by Lessee upon receipt of an invoice and supporting documentation therefor. Lessor's consent to any act, assignment or subletting shall not constitute an acknowledgment that no Default or Breach by Lessee of this Lease exists, nor shall such consent be deemed a waiver of any then existing Default or Breach, except as may be otherwise specifically stated in writing by Lessor at the time of such consent. The failure to specify herein any particular condition to Lessor's consent shall not preclude the imposition by Lessor at the time of consent of such further or other conditions as are then reasonable with reference to the particular matter for which consent is being given. In the event that either Party disagrees with any determination made by the other hereunder and reasonably requests the reasons for such determination, the determining party shall furnish its reasons in writing and in reasonable detail within 10 business days following such request.

37. Guarantor.

37.1 **Execution**. The Guarantors, if any, shall each execute a guaranty in the form most recently published by AIR CRE.

37.2 **Default**. It shall constitute a Default of the Lessee if any Guarantor fails or refuses, upon request to provide: (a) evidence of the execution of the guaranty, including the authority of the party signing on Guarantor's behalf to obligate Guarantor, and in the case of a corporate Guarantor, a certified copy of a resolution of its board of directors authorizing the making of such guaranty, (b) current financial statements, (c) an Estoppel Certificate, or (d) written confirmation that the guaranty is still in effect.

38. **Quiet Possession**. Subject to payment by Lessee of the Rent and performance of all of the covenants, conditions and provisions on Lessee's part to be observed and performed under this Lease, Lessee shall have quiet possession and quiet enjoyment of the Premises during the term hereof.

39. **Options**. If Lessee is granted any option, as defined below, then the following provisions shall apply.

39.1 **Definition**. "**Option**" shall mean: (a) the right to extend or reduce the term of or renew this Lease or to extend or reduce the term of or renew any lease that Lessee has on other property of Lessor; (b) the right of first refusal or first offer to lease either the Premises or other property of Lessor; (c) the right to purchase, the right of first offer to purchase or the right of first refusal to purchase the Premises or other property of Lessor.

39.2 **Options Personal To Original Lessee**. Any Option granted to Lessee in this Lease is personal to the original Lessee, and cannot be assigned or exercised by anyone other than said original Lessee and only while the original Lessee is in full possession of the Premises and, if requested by Lessor, with Lessee certifying that Lessee has no intention of thereafter assigning or subletting.

39.3 **Multiple Options**. In the event that Lessee has any multiple Options to extend or renew this Lease, a later Option cannot be exercised unless the prior Options have been validly exercised.

39.4 **Effect of Default on Options**.

(a) Lessee shall have no right to exercise an Option: (i) during the period commencing with the giving of any notice of Default and continuing until said Default is cured, (ii) during the period of time any Rent is unpaid (without regard to whether notice thereof is given Lessee), (iii) during the time Lessee is in Breach of this Lease, or (iv) in the event that Lessee has been given 3 or more notices of separate Default, whether or not the Defaults are cured, during the 12 month period immediately preceding the exercise of the Option.

(b) The period of time within which an Option may be exercised shall not be extended or enlarged by reason of Lessee's inability to exercise an Option because of the provisions of Paragraph 39.4(a).

(c) An Option shall terminate and be of no further force or effect, notwithstanding Lessee's due and timely exercise of the Option, if, after such exercise and prior to the commencement of the extended term or completion of the purchase, (i) Lessee fails to pay Rent for a period of 30 days after such Rent becomes due (without any necessity of Lessor to give notice thereof), or (ii) if Lessee commits a Breach of this Lease.

40. **Security Measures**. Lessee hereby acknowledges that the Rent payable to Lessor hereunder does not include the cost of guard service or other security measures, and that Lessor shall have no obligation whatsoever to provide same. Lessee assumes all responsibility for the protection of the Premises, Lessee, its agents and invitees and their property from the acts of third parties.

41. **Reservations**. Lessor reserves the right: (i) to grant, without the consent or joinder of Lessee, such easements, rights and dedications that Lessor deems necessary; (ii) to cause the recordation of parcel maps and restrictions; and (iii) to create and/or install new utility raceways, so long as such easements, rights, dedications, maps, restrictions, and utility raceways do not unreasonably interfere with the use of the Premises by Lessee. Lessee agrees to sign any documents reasonably requested by Lessor to effectuate such rights.

42. **Performance Under Protest**. If at any time a dispute shall arise as to any amount or sum of money to be paid by one Party to the other under the provisions hereof, the Party against whom the obligation to pay the money is asserted shall have the right to make payment "under protest" and such payment shall not be regarded as a voluntary payment and there shall survive the right on the part of said Party to institute suit for recovery of such sum. If it shall be adjudged that there was no legal obligation on the part of said Party to pay such sum or any part thereof, said Party shall be entitled to recover such sum or so much thereof as it was not legally required to pay. A Party who does not initiate suit for the recovery of sums paid "under protest" within 6 months shall be deemed to have waived its right to protest such payment.

43. **Authority; Multiple Parties; Execution.**

(a) If either Party hereto is a corporation, trust, limited liability company, partnership, or similar entity, each individual executing this Lease on behalf of such entity represents and warrants that he or she is duly authorized to execute and deliver this Lease on its behalf. Each Party shall, within 30 days after request, deliver to the other Party satisfactory evidence of such authority.

(b) If this Lease is executed by more than one person or entity as "Lessee", each such person or entity shall be jointly and severally liable hereunder. It is agreed that any one of the named Lessees shall be empowered to execute

any amendment to this Lease, or other document ancillary thereto and bind all of the named Lessees, and Lessor may rely on the same as if all of the named Lessees had executed such document.

(c) This Lease may be executed by the Parties in counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same instrument.

44. Conflict. Any conflict between the printed provisions of this Lease and the typewritten or handwritten provisions shall be controlled by the typewritten or handwritten provisions.

45. Offer. Preparation of this Lease by either party or their agent and submission of same to the other Party shall not be deemed an offer to lease to the other Party. This Lease is not intended to be binding until executed and delivered by all Parties hereto.

46. Amendments. This Lease may be modified only in writing, signed by the Parties in interest at the time of the modification. As long as they do not materially change Lessee's obligations hereunder, Lessee agrees to make such reasonable nonmonetary modifications to this Lease as may be reasonably required by a Lender in connection with the obtaining of normal financing or refinancing of the Premises.

47. Waiver of Jury Trial. THE PARTIES HEREBY WAIVE THEIR RESPECTIVE RIGHTS TO TRIAL BY JURY IN ANY ACTION OR PROCEEDING INVOLVING THE PROPERTY OR ARISING OUT OF THIS AGREEMENT.

48. Arbitration of Disputes. An Addendum requiring the Arbitration of all disputes between the Parties and/or Brokers arising out of this Lease attached to this Lease.

49. Accessibility; Americans with Disabilities Act.

(a) The Premises:

X have not undergone an inspection by a Certified Access Specialist (CASp). Note: A Certified Access Specialist (CASp) can inspect the subject premises and determine whether the subject premises comply with all of the applicable constructionrelated accessibility standards under state law. Although state law does not require a CASp inspection of the subject premises, the commercial property owner or lessor may not prohibit the lessee or tenant from obtaining a CASp inspection of the subject premises for the occupancy or potential occupancy of the lessee or tenant, if requested by the lessee or tenant. The parties shall mutually agree on the arrangements for the time and manner of the CASp inspection, the payment of the fee for the CASp inspection, and the cost of making any repairs necessary to correct violations of constructionrelated accessibility standards within the premises.

☐ have undergone an inspection by a Certified Access Specialist (CASp) and it was determined that the Premises met all applicable constructionrelated accessibility standards pursuant to California Civil Code §55.51 et seq. Lessee acknowledges that it received a copy of the inspection report at least 48 hours prior to executing this Lease and agrees to keep such report confidential.

☐ have undergone an inspection by a Certified Access Specialist (CASp) and it was determined that the Premises did not meet all applicable constructionrelated accessibility standards pursuant to California Civil Code §55.51 et seq. Lessee acknowledges that it received a copy of the inspection report at least 48 hours prior to executing this Lease and agrees to keep such report confidential except as necessary to complete repairs and corrections of violations of construction related accessibility standards.

In the event that the Premises have been issued an inspection report by a CASp the Lessor shall provide a copy of the disability access inspection certificate to Lessee within 7 days of the execution of this Lease.

(b) Since compliance with the Americans with Disabilities Act (ADA) and other state and local accessibility statutes are dependent upon Lessee's specific use of the Premises, Lessor makes no warranty or representation as to whether or not the Premises comply with ADA or any similar legislation. In the event that Lessee's use of the Premises requires modifications or additions to the Premises in order to be in compliance with ADA or other accessibility statutes, Lessee agrees to make any such necessary modifications and/or additions at Lessee's expense.

LESSOR AND LESSEE HAVE CAREFULLY READ AND REVIEWED THIS LEASE AND EACH TERM AND PROVISION CONTAINED HEREIN, AND BY THE EXECUTION OF THIS LEASE SHOW THEIR INFORMED AND VOLUNTARY CONSENT THERETO. THE PARTIES HEREBY AGREE THAT, AT THE TIME THIS LEASE IS EXECUTED, THE TERMS OF THIS LEASE ARE COMMERCIALLY REASONABLE AND EFFECTUATE THE INTENT AND PURPOSE OF LESSOR AND LESSEE WITH RESPECT TO THE PREMISES.

ATTENTION: NO REPRESENTATION OR RECOMMENDATION IS MADE BY AIR CRE OR BY ANY BROKER AS TO THE LEGAL SUFFICIENCY, LEGAL EFFECT, OR TAX CONSEQUENCES OF THIS LEASE OR THE TRANSACTION TO WHICH IT RELATES. THE PARTIES ARE URGED TO:

1. **SEEK ADVICE OF COUNSEL AS TO THE LEGAL AND TAX CONSEQUENCES OF THIS LEASE.**
2. **RETAIN APPROPRIATE CONSULTANTS TO REVIEW AND INVESTIGATE THE CONDITION OF THE PREMISES. SAID INVESTIGATION SHOULD INCLUDE BUT NOT BE LIMITED TO: THE POSSIBLE PRESENCE OF HAZARDOUS SUBSTANCES, THE ZONING OF THE PREMISES, THE STRUCTURAL INTEGRITY, THE CONDITION OF THE ROOF AND OPERATING SYSTEMS, COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT AND THE SUITABILITY OF THE PREMISES FOR LESSEE'S INTENDED USE.**

WARNING: IF THE PREMISES ARE LOCATED IN A STATE OTHER THAN CALIFORNIA, CERTAIN PROVISIONS OF THE LEASE MAY NEED TO BE REVISED TO COMPLY WITH THE LAWS OF THE STATE IN WHICH THE PREMISES ARE LOCATED.

The parties hereto have executed this Lease at the place and on the dates specified above their respective signatures.

By LESSOR:
Rehco Holdings, LLC

By: /s/ Russell Lewis
Name Printed: Russell Lewis
Title: Manager

By LESSEE:
International Stem Cell Corporation & S Real Estate Holdings, LLC

International Stem Cell Corporation

By: /s/ Russell Kern
Name Printed: Dr. Russell Kern
Title:

S Real Estate Holdings, LLC

By: /s/ Russell Kern
Name Printed: Dr. Russell Kern
Title: Manager

ADDENDUM TO LEASE DATED OCTOBER 19, 2021, BETWEEN REHCO HOLDINGS, LLC, AS LESSOR, AND INTERNATIONAL STEM CELL CORPORATION & S REAL ESTATE HOLDINGS, LLC, AS LESSEE, FOR THE PREMISES LOCATED AT 9745 BUSINESS PARK AVENUE, SAN DIEGO, CA 92131.

50. **ADDITIONAL CONDITIONS AFFECTING USE OF THE PREMISES**. Lessee, shall, at all times, maintain the exterior of the Premises and the parking lot in a neat, clean, and orderly fashion. Lessee may not enter upon the roof of the Premises without written consent from Lessor. The parking lot shall not be used for storage. The parking lot shall be used for no longer than twenty-four (24) hours at a time for operable vehicle parking only. Disabled vehicles shall not be parked, kept, or repaired in the parking lot.

51. **CONFIDENTIALITY**. Lessee agrees that all information pertaining to the terms and conditions of this Lease shall be kept strictly confidential between Lessor, its agents and legal representatives, and Lessee and its agents and legal representatives.

52. **RENT ADJUSTMENTS**. Lessee agrees to pay Lessor the following amounts as Base Rent referred to in Paragraph No 1.5 of this Lease each month of the term hereof on the first day of the month commencing November 1, 2021.

November 1, 2021 – November 30, 2021	$10,890.00 per month
December 1, 2021 – April 30, 2022	$5,445.00 per month
May 1, 2022 – October 31, 2022	$10,890.00 per month
November 1, 2022 – October 31, 2023	$11,271.15 per month
November 1, 2023 – October 31, 2024	$11,665.64 per month
November 1, 2024 – October 31, 2025	$12,073.93 per month
November 1, 2025 - October 31, 2026	$12,496.52 per month
November 1, 2026 - December 31, 2026	$12,933.90 per month

Additionally, the estimated monthly CAMs are initially $0.30/PSF per month ($2,178) and are due and payable in advance in addition to the monthly rent.

53. **RENT ABATEMENT**. Base Rent for months 2-5 shall be abated by 50% per Paragraph 52 above. CAMs are due in full during Rent Abatement period.

54. **CONDITION OF THE PREMISES**. Lessee accepts the Premises in its current "as is, where as" condition. Lessor shall deliver all lighting, plumbing, electrical, doors, roll-up door and skylights in working order at Lease Commencement.

55. **SIGNS**. Lessee, at Lessee's sole cost and expense, shall have the right to install an appropriate sign on the front of the Premises above as long as said sign shall (1) comply with the City of San Diego Zoning and Sign Ordinances, and (2) Lessor to approve any new signs in writing prior to their installation.

56. For purposes of this Lease with respect to Lessor, all rent payments and written notices are to be sent to Rehco Holdings, LLC, 9747 Business Park Avenue, San Diego, CA 92131.

In the event of any contradictions or discrepancies between this Addendum and the body/text of the original lease, the terms and conditions of this Addendum shall prevail.

LESSOR: REHCO HOLDINGS, LLC

By: /s/ Russell Lewis
Date: 10/26/2021 | 12:16 PDT

LESSEE: INTERNATIONAL STEM CELL CORPORATION & S REAL ESTATE HOLDINGS, LLC

INTERNATIONAL STEM CELL CORPORATION

By: Dr. Russell Kern
Date: 10/26/2021

S REAL ESTATE HOLDINGS, LLC

By: Dr. Russell Kern
Date: 10/22/2021

Exhibit 10.12

EXHIBIT "A"

9745 BUSINESS PARK AVE, SAN DIEGO, CA 92131

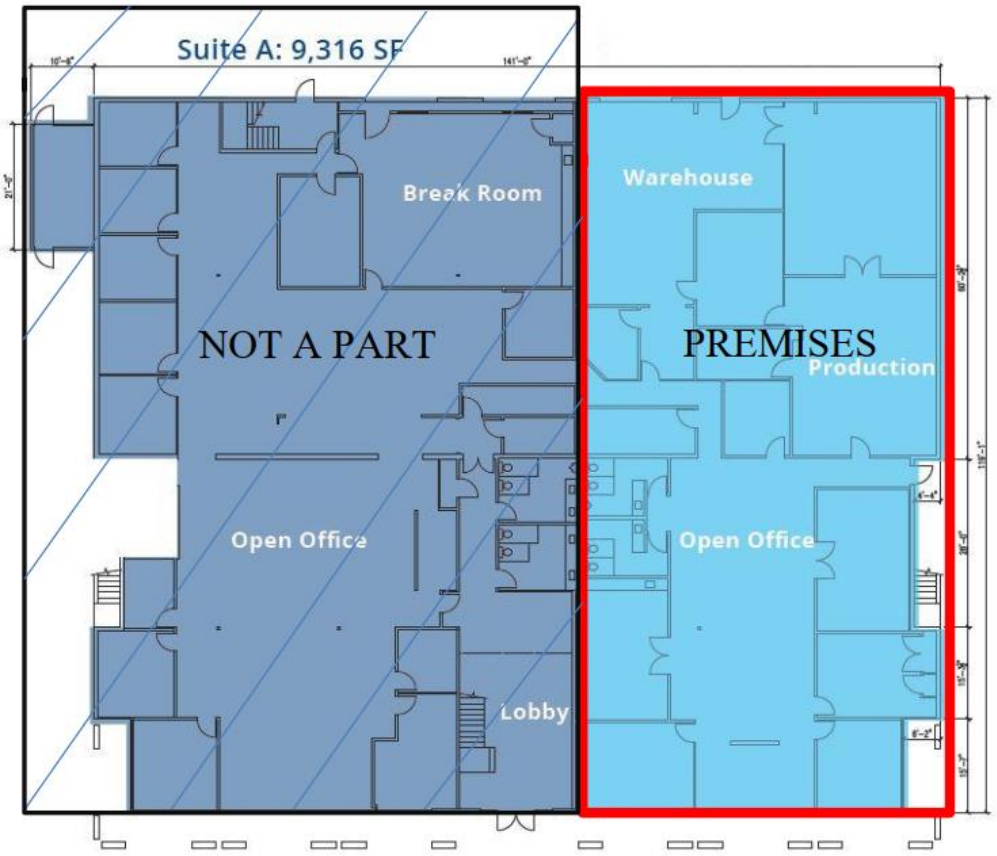

Exhibit 10.12

GUARANTY OF LEASE

WHEREAS, Rehco Holdings, LLC, hereinafter "Lessor", and International Stem Cell Corporation & S Real Estate Holdings, LLC , hereinaGer "Lessee", are about to execute a document entitled "Lease" dated October 19, 2021 concerning the premises commonly known as (street address, city, state, zip) 9745 Businesspark Ave, San Diego, CA 92131 wherein Lessor will lease the premises to Lessee, and

WHEREAS, Dr. Russell Kern hereinaGer "Guarantors" have a financial interest in Lessee, and WHEREAS, Lessor would not execute the Lease if Guarantors did not execute and deliver to Lessor this Guaranty of Lease.

NOW THEREFORE, in consideration of the execution of said Lease by Lessor and as a material inducement to Lessor to execute said Lease, Guarantors hereby jointly, severally, unconditionally and irrevocably guarantee the prompt payment by Lessee of all rents and all other sums payable by Lessee under said Lease and the faithful and prompt performance by Lessee of each and every one of the terms, conditions and covenants of said Lease to be kept and performed by Lessee.

It is specifically agreed by Lessor and Guarantors that: (i) the terms of the foregoing Lease may be modified by agreement between Lessor and Lessee, or by a course of conduct, and (ii) said Lease may be assigned by Lessor or any assignee of Lessor without the consent of or notice to Guarantors and that this Guaranty shall guarantee the performance of said Lease as so modified.

This Guaranty shall not be released, modified or affected by the failure or delay on the part of Lessor to enforce any of the rights or remedies of the Lessor under said Lease.

No notice of default by Lessee under the Lease need be given by Lessor to Guarantors, it being specifically agreed that the guarantee of the undersigned is a continuing guarantee under which Lessor may proceed immediately against Lessee and/or against Guarantors following any breach or default by Lessee or for the enforcement of any rights which Lessor may have as against Lessee under the terms of the Lease or at law or in equity.

Lessor shall have the right to proceed against Guarantors following any breach or default by Lessee under the Lease without first proceeding against Lessee and without previous notice to or demand upon either Lessee or Guarantors.

Guarantors hereby waive (a) notice of acceptance of this Guaranty. (b) demand of payment, presentation and protest, (c) all right to assert or plead any statute of limitations relating to this Guaranty or the Lease, (d) any right to require the Lessor to proceed against the Lessee or any other Guarantor or any other person or entity liable to Lessor, (e) any right to require Lessor to apply to any default any security deposit or other security it may hold under the Lease, (f) any right to require Lessor to proceed under any other remedy Lessor may have before proceeding against Guarantors, (g) any right of subrogation that Guarantors may have against Lessee.

Guarantors do hereby subordinate all existing or future indebtedness of Lessee to Guarantors to the obligations owed to Lessor under the Lease and this Guaranty.

If a Guarantor is married, such Guarantor expressly agrees that recourse may be had against his or her separate property for all of the obligations hereunder.

The obligations of Lessee under the Lease to execute and deliver estoppel statements and financial statements, as therein provided, shall be deemed to also require the Guarantors to provide estoppel statements and financial statements to Lessor. The failure of the Guarantors to provide the same to Lessor shall constitute a default under the Lease.

The term "Lessor" refers to and means the Lessor named in the Lease and also Lessor's successors and assigns. So long as Lessor's interest in the Lease, the leased premises or the rents, issues and profits therefrom, are subject to any mortgage or deed of trust or assignment for security, no acquisition by Guarantors of the Lessor's interest shall affect the continuing obligation of Guarantors under this Guaranty which shall nevertheless continue in full force and

effect for the benefit of the mortgagee, beneficiary, trustee or assignee under such mortgage, deed of trust or assignment and their successors and assigns.

The term "Lessee" refers to and means the Lessee named in the Lease and also Lessee's successors and assigns.

Any recovery by Lessor from any other guarantor or insurer shall first be credited to the portion of Lessee's indebtedness to Lessor which exceeds the maximum liability of Guarantors under this Guaranty.

No provision of this Guaranty or right of the Lessor can be waived, nor can the Guarantors be released from their obligations except in writing signed by the Lessor.

Any litigation concerning this Guaranty shall be initiated in a state court of competent jurisdiction in the county in which the leased premises are located and the Guarantors consent to the jurisdiction of such court. This Guaranty shall be governed by the laws of the State in which the leased premises are located and for the purposes of any rules regarding conflicts of law the parties shall be treated as if they were all residents or domiciles of such State.

In the event any action be brought by said Lessor against Guarantors hereunder to enforce the obligation of Guarantors hereunder, the unsuccessful party in such action shall pay to the prevailing party therein a reasonable attorney's fee. The attorney's fee award shall not be computed in accordance with any court fee schedule, but shall be such as to full reimburse all attorneys' fees reasonably incurred.

If any Guarantor is a corporation, partnership, or limited liability company, each individual executing this Guaranty on said entity's behalf represents and warrants that he or she is duly authorized to execute this Guaranty on behalf of such entity. Signatures to this Guaranty accomplished by means of electronic signature or similar technology shall be legal and binding.

If this Form has been filled in, it has been prepared for submission to your attorney for his approval. No representation or recommendation is made by AIR CRE, the real estate broker or its agents or employees as to the legal sufficiency, legal effect, or tax consequences of this Form or the transaction relating thereto.

GUARANTORS
Dr. Russell Kern

Executed At:
On: 10/22/2021

By: /s/ Russell Kern
Name Printed: Dr. Russell Kern

Exhibit 10.13

SCRIPPS RANCH OFFICE LEASE AGREEMENT

NAME OF TENANT	International Stem Cell Corporation
ADDRESS	9747 Businesspark Avenue
CITY, STATE, ZIPCODE	San Diego, CA 92131
TELEPHONE NUMBER	
EMAIL	

This professional office lease (hereinafter "Lease") is entered into and executed by and between Tenant whose name appears above (hereinafter "tenant") and Rehco Holdings, LLC (hereinafter "RH"), the owner and operator of the office building located at 9747 Businesspark Avenue, San Diego, CA 92131.

The following schedule briefly describes the office lease to tenant (hereinafter the "Premises"), and summarizes the term and commencement date of the lease, the monthly rent, and security deposit which tenant will pay to RH prior to occupying the Premises. Each item listed in schedule is described in more detail hereinafter.

Lease Schedule

Office Number 214/15

Number of Persons 10

Commencement Date December 1, 2021

Term of Lease 5 Years

Rent 214/215
Year One $4,400.00/mo
Year Two $4,800.00/mo
Year Three $4,968.00/mo
Year Four $5,142.00/mo
Year Five $5,322.00/mo

Marquis and Door Sign $60.00

Security Deposit $4,400

Total Amount Due $8,860.00

1. **PREMISES**. RH hereby Leases to Tenant and Tenant hereby Leased from RH the premises designated above herein.

2. **TERM**. The term of this lease shall commence on the date set forth above and shall continue for the term set forth above. Such term, and any extension given with the express written consent of RH, is hereafter referred to as "Term." If RH is unable to deliver possession of the Premises of the Tenant at the commencement date of the term, Tenant will not be obligated to pay the basic monthly rate as defined above (the "Rent"), until RH delivers possessions.

3. **PAYMENTS**. Tenant agrees to pay to RII the basic monthly rent rate in the amount stated above during the term of this lease. Tenant will pay when due hereunder such rent, and any other charge(s) (ie. copier and postage charges), including any applicable sales, use and other taxes, now or hereafter imposed by any governmental body, without making any deduction or offset to:

a) All payments to RH hereunder are due and payable in advance on the first of every month without demand or offset. Any additional charges are due and payable upon receipt of an invoice from RH.

b) b) ANY PAYMENT NOT RECEIVED WITHIN FIVE (5) DAYS AFTER THE DUE DATE IS SUBJECT TO A LATE CHARGE EQUAL TO TEN PERCENT (10%) OF THE PAST DUE BALANCE, BUT NO LESS THAN TEN DOLLARS ($10.00), TO COMPENSATE RH FOR THE EXTRA COST INCURRE D AS A RESULT OF SUCH LATE PAYMENT

4. **USE**. Tenant shall use the premises as and for an executive suite (as defined hereafter), and for no other purpose without the prior written consent of RH. Tenant shall abide by all laws, ordinances, rules and regulations pertaining to the use of the premises.

a) "Executive Suite" shall mean an office to be used for professional business purposes and the use of adjoining facilities for services provided to and shared by other tenants of RI1, which include the kitchen, conference rooms, copier/mailroom, and second floor lobby. Other amenities included are utilities, janitorial and internet.

b) Tenant agrees that Tenant will not offer or use the Premises to provide other services provided by RH to RI4's tenants, nor make nor permit use of the Premises which is forbidden by law or regulation, or may be hazardous or unsafe, or may tend to impair the character, reputation, appearance or operation of RH.

c) Tenant shall neither use nor occupy premises in any manner, nor commit any act resulting in a cancellation or reduction of any insurance coverage or increase in premiums on any insurance policy covering the premises or the property or building of which the Premises are a paFt. Tenant agrees to maintain a general liability policy with a minimum limit of $500,000. Tenant also agrees to furnish RH with a certificate of insurance naming RH as an additional insured.

5. **IMPROVEMENTS AND ALTERATIONS**. RH has made no promise to alter or improve the Premises and has made no representation concerning the condition thereof. By taking possession of the premises, Tenant acknowledges that they are in good order and condition. Tenant shall maintain the Premises in good condition and repair, will not make holes in walls for any reason except hanging of pictures, or cause or permit the Premises to be damaged or defaced in any manner whatsoever. Tenant will make no alterations or additions to the Premises without RH's prior written consent. Tenant will return the premises at the end of the term in as good condition and repair as when the Tenant received the Premises, reasonable wear and tear excepted. RH may, but is not required to, make repairs or replacements for tenant's account, and tenant will pay to RH all costs and expenses for such repairs and replacements upon demand. It is also agreed that damage or injury done to the premises, by Tenant, or by any person who may be in or upon the premises with the consent of the Tenant, other than from normal wear and tear, shall be paid by Tenant. Upon termination of this lease, whether upon expiration of the term hereof or sooner, Tenant agrees to pay RH the sum of ONE HUNDRED DOLLARS ($100.00) per leased office to cover painting cost for each such office.

6. **LIMITATION OF LIABILITY**

THIS LEASE IS MADE UPON THE EXPRESS CONDITION THAT RH I IALL BE FREE FROM ALL LIABILITIES AND CLAIMS FOR DAMAGES, EXCEPT FOR CLAIMS ARISING FROM THE ALLEGED NEGLIGENCE OF RH, by reason of any injury to any person or persons, including tenant, or property of any kind, from any cause or causes, in any way connected with the said Premises or the use of occupancy thereof during the term of this lease or any extensions hereof or any occupancy hereunder.

a. THE PREMISES AND ANY SERVICE, FURNISHINGS, AND FACILITIES PROVIDED PURSUANT TO THIS LEASE ARE FURNISHED WITHOUT WARRANTY OF ANY SORT WHATSOEVER. Tenant's sole remedy, and RH's sole obligation for any failure to render any service, furnishings or facility, any error or omission, or any delay or interruption with respect thereto, is limited to an adjustment of Tenants billing in an amount equal to the charge for such service, furnishing or facility for the periods during which the failure, delay or interruption continues, which will calculated by square footage of the space occupied by tenant. RH will have the option of providing equal space in the building, if available. (By way of example only, if Tenant's office is reasonably determined to

be usable due to the negligence or fault of RH, Tenant's billing will be reduced in proportion to Tenant's reduced use thereof). With the sole exception of the remedy set forth in this paragraph (6a), Tenant expressly and specifically agrees to waive, and agrees not to make a claim for damages, direct or consequential, arising out of any failure to furnish any service, furnishing or facility, any error or omission with respect thereto, or any delay or interruption of the same.

Notwithstanding anything in this paragraph, there shall be no billing adjustment if Tenant is in default hereunder.

7. **INDEMITY**. Tenant hereby agrees to indemnify and hold harmless RH from all liability, loss, and cost or obligations including actual attorney's fees on account of Tenants use of the premises and anything done or allowed to be done by Tenant on the premises or the building where the premises are located. On the other hand, RH agrees to defend and indemnify Tenant against any loss or claim for damages, including attorney fees, arising from RH's alleged negligence or willful misconduct.

8. **DESTRUCTION OF PREMISES**. Should the premises or the building in which said Premises are located be so damaged by flood, fire, earthquake, explosion or other cause, that in the opinion of RH, is impracticable or inadvisable to restore the same, then this lease shall terminate as of the date of such damage, and both RH and Tenant shall be released from all obligations hereunder, subsequent to the date of such damage. In the event that RH shall desire to restore the Premises, RH shall have thirty (30) days or such additional times as may be mutually agreed between the parties, so to do. The rent due hereunder during that the Premises are in need of or are being restored shall be abated or proportionately reduced, depending on whether the Premises are entirely or partially untenantable.

9. **EMINENT DOMAIN**. In the event that all or part of the Premises shall be taken under power of eminent domain or sold under threat of such taking, this lease shall terminate as to the part so taken or sold, and the rent shall be reduced into the portion that the value of the premises is reduced thereby. The entire award of proceeds from such taking or sale of land and improvement, including severance damages, shall belong to RH and Tenant shall be entitled only to the portion of the award or proceeds for its personal property which may be taken, and any relocation allowance actually paid by the condemning authority. Tenant may terminate this Lease by notice to RH within thirty (30) days after such taking or sale.

10. **DEFAULT**. Tenant shall be in default hereunder when tenant does not pay sum payable by Tenant to RH after such sum becomes due and payable under this lease, or if tenant fails to perform any of Tenant's other covenants or provisions of agreements under this lease. If Tenant does not cure such default within three (3) days after written notice from RH, RH shall have the right, with or without further notice, and in addition to and not in lieu of other remedies available, to terminate all of Tenant's rights under the lease, or such of those rights as RH designates in such written notice. Such notice shall be in lieu of, and not in addition to, any notice required by California Code of Civil Procedures 1161. If tenant's rights under this Lease are so terminated, RH may, after complying with any applicable requirements of law, take possession of premises. Upon any such actions by RH, Tenant shall remain liable for all obligations which have previously accrued, and, to the maximum extent permitted by law, for all obligations which may subsequently accrue under this Lease.

11. **SECURITY DEPOSIT**. Upon execution of this lease, Tenant shall pay RH the amount set forth in the Lease Schedule herein as a deposit ("Security Deposit" herein). Such amount shall be held by RH as security for the full, faithful, and complete performance by Tenant of all terms, covenants and agreements to be kept by Tenant hereunder, or under any other agreement between Tenant and RH. If Tenant fails to perform any of Tenant's obligations when performances due, RH may apply Security Deposit to the payment of any monthly charge or any other payment due from Tenant, or of any sum which RH may spend or be required to spend by reason of Tenant's failure. Upon written demand by RH, Tenant will pay RH any amount so applied so that such Security Deposit is returned to its original amount to as specified herein. If at the end of the term this Lease Tenant has performed all of the provisions of this Lease, the Security Deposit, or any remaining balance, will be returned to Tenant, without interest, within FORTY-FIVE (45) days after the end of such term.

12. **ASSIGNMENT AND SUBLETTING**. Only with the prior written consent of RH may Tenant assign this Lease or any interest herein or sublet the Premises or any portion thereof or permit any other person to occupy the premises or any portion thereof. Such consent will not be unreasonably withheld provided that such consent may be conditioned upon Tenant agreeing to pay RH all rent or other consideration paid by such assignee in excess of the Basic Monthly

Rent. Consent to assignment or subletting shall not constitute a waiver of this provision or consent to any further assignments or subletting. No assignee for the benefit of creditors, trustee in bankruptcy or purchaser to any execution sale shall have any right to possess or occupy the Premises or any part thereof, or claim of right hereunder. Tenant agrees to reimburse RH's reasonable attorneys' fees incurred in connections with the processing documentation of any requested transfer assignment or subletting agreement.

13. **TERMINATION**. TENANT SHALL GIVE RH NOT LESS THAT THIRTY (30) DAYS WRITTEN NOTICE OF TENANT'S INTENTION TO DISCONTI NUE ITS TENANCY HEREUNDER PRIOR TO THE END OF ANY TERM. If Tenant fails to provide such notice, Tenant's term shall automatically be renewed on a Month-to Month basis. Any renewal shall be upon the same terms, conditions and provisions as in this Lease except that the rental shall be increased by TEN Percent (10%) to 1.10 times the monthly rental which was in effect immediately prior to such renewal. Said notice may not be given more than SIXTY (60) days prior to the end of any term.

14. **SURRENDER OF POSSESSION BY TENANT**. Tenant hereby agrees, upon the termination for this Lease, to immediately and peaceably yield up and surrender the Premises in as good condition as the same were at the time of the taking of possessions, subject to reasonable wear and tear. Any personal property remaining in the Premises upon expiration of termination shall be deemed abandoned. Notwithstanding Tenant's failure to give THIRTY (30) day notice of termination as provided above, RH may, at any time after termination of the initial term hereof during the month-to-month period give Tenant a demand for possession of the premises (the "Possession Date"). If tenant remains in possession of the Premises after the possession date, tenant shall become a lessee at sufferance only, upon the same terms and conditions as contained herein except that the monthly rent shall equal TWO (2) times the monthly rent which was in effect immediately prior to the Possession Date. Acceptance by RH of rent after the Possession Date shall not constitute consent to a holdover by tenant or result in a renewal of this Lease. In addition, Tenant shall indemnify and hold harmless RH from any and all claims, demands, losses or damages incurred by or asserted against RH due to Tenant's failure to deliver possession of the Premises at the Possession Date including, without limitation, and claims by and succeeding tenant for the Premises based on such delay.
15. Right of Entry. RH's agent may enter upon Premises upon 48 hours written notice to inspect and examine the Premises and to see that the covenants hereof are being kept and performed, to take action which may be required or permitted hereunder, to make such repairs, additions, or improvements as RI 1 shall deem necessary, or to exhibit the premises to prospective tenants or purchasers thereof.

16. **SIGNS**. Except pursuant to express written consent from RH or as provided pursuant to this Lease, Tenant shall not place or permit to be placed any sign, advertisement, notice or other similar matter on any doors, windows, or walls or other areas of the Premises which are open to the view of persons in the common area of the RH Center. Signs will be permitted, at a cost to the Tenant, on the first floor marquis in the lobby and outside of the Tenant's office door.

17. **KEYS**. Two (2) keys to the Premises will be furnished by RH. Additional keys will be furnished upon Tenant's payment to RH of the fee therefore. Tenant shall not cause or permit the duplication of any keys to be made, and Tenant shall not cause or permit and keys to be possessed by any person other than an authorized agent of Tenant. Tenant agrees to return to RH all keys to the Premises at the termination of the tenancy. RH shall have the right to charge Tenant TEN DOLLARS ($10.00) for each key which Tenant does not return to RH within FIVE (5) days of vacating the Premises.

18. **WAIVER**. One or more waivers by either party of any breach of any covenant or condition hereunder shall not be construed as a waiver of a subsequent or continuing breach of the same or of any other covenant or condition, and the consent or approval by RH to or of any act by Tenant requiring RH's consent of approval shall not be deemed to waive or render unnecessary RH's consent or approval to or of any subsequent act by Tenant.

19. **TIME OF ESSENCE.** Time is expressly of the essence of this Lease, and of all covenants and condition contained herein.

20. **SUCCESSORS AND ASSIGN**. The covenants and conditions herein contained shall, subject to the provision as the assignments and subletting, apply to and bind heirs, successors, executors, administrators and assigns of the respective parties hereto. If the Lease is executed by more than one person as Tenant, their obligation shall be joint and several.

Tenant:
International Stem Cell Corporation

By: /s/ Andrey Semechkin
Name: Andrey Semechkin
Title: CEO

Landlord:
Rehco Holdings, LLC

By: /s/ Russell Lewis
Name: Russell Lewis
Title: Manager

Exhibit 10.14

CO-TENANT AGREEMENT

This Co-Tenant Agreement ("Agreement") is made as of November __, 2021 ("Effective Date") by and between International Stem Cell Corporation, having its principal business of 5950 Priestly Drive, Carlsbad, California 92008 (hereinafter referred to as "ISCO") and S REAL ESTATE HOLDINGS, LLC (hereinafter referred to as "S Real Estate"). Collectively, ISCO and S Real Estate are referred to as the "Parties".

WHEREAS, on October 26, 2021, PARTIES have entered into a lease agreement (the "Lease") with Rehco Holdings (the "Landlord") for the purpose of establishing joint corporate headquarters at 9745 Businesspark Ave, San Diego, CA (the "Premises"); and

WHEREAS, during the term of the Lease, the PARTIES are responsible for paying Base Rent, as specified in the Lease, and certain additional costs and expenses in addition to Base Rent, including insurance, maintenance costs, taxes, and operating expenses ("Costs and Expenses"); and

WHEREAS, in connection with PARTIES' joint leasing and use of the Premises, PARTIES now desire to set forth the terms for allocating each Party's share of Base Rent, Costs and Expenses, and any other expenses incidental to the PARTIES' leasing of the Premises; and

NOW THEREFORE, the PARTIES have agreed to the allocation schedule set forth in Exhibit A attached hereto, as may be amended from time to time;

IN WITNESS WHEREOF, the PARTIES have executed this letter or caused this letter to be executed by their duly authorized agents on the dates indicated below.

INTERNATIONAL STEM CELL		**S REAL ESTATE HOLDING**	
By:	/s/ Andrey Semechkin	By:	/s/ Russell Kern
Name:	Andrey Semechkin	Name:	Russell Kern
Title:	Co-Chairman and CEO	Title:	Manager
Date:	12/15/2021	Date:	12/15/2021

EXHIBIT A
Effective: December 1, 2021

Base Rent Allocation:	ISCO – 40%, S Real Estate – 60%
Costs and Expenses Allocation:	ISCO – 40%, S Real Estate – 60%

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

International Stem Cell Corporation
San Diego, California

We hereby consent to the incorporation by reference in the Registration Statements on Form S-1 (Nos. 333-210840, 333-201589, and 333-199799) and Form S-8 (Nos. 333-226844, 333-211411, 333-206930, 333-169549, 333-166883, 333-166421, 333-166420, 333-164539, 333-159424, 333-159421, and 333-150920) of International Stem Cell Corporation (the "Company") of our report dated March 29, 2022, relating to the consolidated financial statements, which appears in this Form 10-K. Our report contains an explanatory paragraph regarding the Company's ability to continue as a going concern.

/s/ BDO USA, LLP

San Diego, California
March 29, 2022

Exhibit 31.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER

I, Andrey Semechkin, certify that:

1. I have reviewed this annual report on Form 10-K of International Stem Cell Corporation;

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

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

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

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

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

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

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

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

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

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

Date: March 29, 2022

/S/ ANDREY SEMECHKIN

Andrey Semechkin

Chief Executive Officer

(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER

I, Sophia Garnette, certify that:

1. I have reviewed this annual report on Form 10-K of International Stem Cell Corporation;

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

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

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

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

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

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

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

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

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

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

Date: March 29, 2022

/s/ Sophia Garnette

Sophia Garnette

Vice President, Legal Affairs and Operations

(Principal Financial Officer)

Exhibit 32.1

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

In connection with the Annual Report of International Stem Cell Corporation (the "Company") on Form 10-K for the year ended December 31, 2021 as filed with the Securities and Exchange Commission on March 29, 2022 (the "Report"), I, Andrey Semechkin, Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

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

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

Date: March 29, 2022

/S/ ANDREY SEMECHKIN
Andrey Semechkin
Chief Executive Officer
(Principal Executive Officer)

Exhibit 32.2

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

In connection with the Annual Report of International Stem Cell Corporation (the "Company") on Form 10-K for the year ended December 31, 2021 as filed with the Securities and Exchange Commission on March 29, 2022 (the "Report"), I, Sophia Garnette, Vice President, Legal Affairs & Operations of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

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

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

Date: March 29, 2022

/s/ Sophia Garnette
Sophia Garnette
Vice President, Legal Affairs & Operations
(Principal Financial Officer)